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Chicago Concerned About Pricing Policies

Extensive Grade Shifting Expected To Result From Current OPA Pricing Formula—Personnel Changes Bring Names Into the News — Tribute Paid To Paper Packaging Pioneer — Other Late News.

CHICAGO, Ill., December 3, 1945—The Chicago paper market remained virtually unchanged this week though it was more and more apparent that OPA pricing policies were growing more irksome to the trade in general. From both pulp and paper offices comes further proof that there is an extensive grade shifting resulting from OPA policies which are said to be going to have a long range and not too good reaction on the trade. It will be necessary, according to paper executives here, to get OPA to realistically revise pricing policies or be the principal reason for a big shortage of low priced goods as compared to an over-supply of high priced items. The retailer customers of the trade here report that this is what has been happening in the apparel and other lines for many months!

Meanwhile, lifting of certain OPA production restrictions in printing papers have caused little change here primarily because of the shortage of the materials themselves. Reports from pulp producing centers still retain a most gloomy tinge. Manpower conditions, shortages of allied raw materials and production costs all figure in to give the trade what one executive termed a "lean and hungry look."

Specific lines remained little changed—military papers still topping all others in demand. Waste papers were fair from a collection standpoint but collections were reported still woefully inadequate for the demand from the mills.

Return From U. S. Service

Chicago paper offices continue to receive with open arms those gentlemen who have been on duty in the armed forces, are now discharged and are back at their old jobs. This week J. P. Overton, Jr., returned to the Chicago sales offices of the Standard Paper Company after three years of fighting service during which time he rose from the rank of private to captain. The Chicago Paper Company has also reported that Lt. Commander Forrest Gillett has now returned to the company after five years of service in the Navy. Mr. Gillett, son of Noble Gillett, president of the Chicago Paper Company, has plenty of battle stripes to indicate the fact that he has been in the thick of things most of the five year period.

H. Wilson Goes to West Coast

It is reported in Chicago that Henry Wilson, recently resigned as an officer of the Schwarz Paper Company, Chicago coarse paper firm, has become identified with Blake, Moffitt, & Towne, Los Angeles jobber firm. Mr. Wilson, it is said, is to be assistant sales manager of the wrapping paper department. Mr. Wilson was originally from the West Coast, having been with the Hawley Pulp & Paper Company and the Crown Willamette Paper Company for a number of years prior to his coming to Chicago.

Pays Tribute to Package Machine Firm

Phil Hanna, well known Chicago financial writer, this week takes occasion to pay a tribute to Frank D. Palmer, Inc., and the Palmer Development Laboratories for their contribution to the industry through the development of packaging machinery. Mr. Hanna refers to one of the latest productions of the company as a machine for making a sift-proof carton, a machine which he says automatically checks the weight of each carton. When the specific gravity of the filled material begins to change, the machine automatically raises or lowers the volume let into each carton. No manual operation is involved.

The financial writer also reports many other Palmer products for making paper milk bottles, for packaging ice cream and for packaging cheese "to name just a few." Members of the paper industry will also be interested in Mr. Hanna's brief history of the Palmer company. He reports that "the genesis of this unique business occurred in 1938 when Mr. Palmer, Sr., who had been sales promotion manager for International Silver Company, had a vision of improving machinery for mechanical handling of food products. He happened to tell his story to J. L. Kraft who became immediately interested in a machine for wrapping process cheese and sealing it instantly and hermetically. Palmer made a model for Kraft out of beaver board and other substitutes for steel. . . . From this crude form came the final machine."

Palmer, senior and Palmer, junior are now building machines for many new customers in seven major industries. In the food field their experiments are expanding to cover products which can be mechanically cut and sorted, as well as packaged.

C. W. Stevens Goes to B. & P.

Carl W. Stevens, long and favorably known in the paper trade, has accepted the position as manager of the newly created board and specialties department of Bermingham & Prosser, well known paper jobbers. Mr. Stevens was formerly a member of the firm of Stevens-Thompson Paper Company of N. Hoosick, New York and served the firm as a member of the

(Continued on page 18)

Canada Announces Post-War Forest Plans

Appointment of Forest Insects Control Board Is Initial Step In New Long-Range Conservation Work—Timber Is Country's Economic Gibraltar — 4-H Clubs Active In Forestry — Other News.

MONTREAL, Que., December 3, 1945—The first of the long-range plans for forest conservation which the federal Government has foreshadowed as part of its post-war reconstruction plans has been announced by Hon. C. D. Howe, Reconstruction Minister. This is the appointment of a Forest Insects Control Board, which lays the foundation for a new phase of public works that will fit into the definition of investment in public works that will pay dividends in promoting private enterprise and safeguarding employment in indigenous industry.

Outlining the scope for profitable work under the auspices of the new Board, Mr. Howe said that destruction of Canadian forests by insects, and particularly by the spruce budworm, has already reached the proportions of a national disaster. "The present epidemic, unless controlled," he said, "may result in the loss of 35 years' supply of raw material for paper products representing an export value of some $8,000,000. This is the first instance in which the Dominion has taken the lead in trying to organize an effective joint attack on a serious forestry problem. In view of the importance of our forest industries, it must not be the last."

Outlining the functions of the Board, he said it would first gather, "as quickly as possible," all pertinent information in connection with the budworm plague, "which already has devastated some 22,000 square miles of forest and is present in a total of about 250,000 square miles, or roughly one-third of the accessible productive forest of the nation."

The Government, he continued, will underwrite research work both in Canada and abroad. As soon as possible research experts will be sent to the timber countries of Europe to investigate the possibility of securing natural enemies of comparable European insect species which may prove effective in control measures in this country. Meanwhile work on experimental measures of control by insecticides, already initiated in certain areas, will be intensified.

The new board is headed by E. Menard, former chief forest inspector in Quebec. Other members are J. J. DeGryse, chief of the forest insects division of the Agriculture Department; D. A. Macdonald, acting Dominion forester in the Mines Department; J. A. Brodie, division of forest protection of the Ontario Department of Lands and Forests; Dr. Lionel Daviault, chief of the Quebec Bureau of Entomology; Major-General Howard Kennedy, of Montreal, vice-president of the Ontario Paper Company; C. D. Orchard, Deputy Minister of Forests in British Columbia and Dr. G. H. Prince, Deputy Minister of Lands and Mines in New Brunswick.

Canada's Economic Gibraltar

Terming the timber resources of this country as "Canada's Economic Gibraltar," Robson Black, president of the Canadian Forestry Association, gave point to the federal Government's new move by an address before the Canadian Club of Montreal in which he said that "The moving finger of world demand, in a world that is running low on forest assets, with the United States 40% poorer in timber than it was 30 years ago, points straight to the timber resources as Canada's economic Gibraltar." He declared that if creative forest management is to be a rule of this land —"and we can survive on nothing less"—then it has got to be by a partnership of industry, Government, and the public. Forests were Canada's most distinctive industrial asset, and it must be recognized that no exhausted nation can re-equip itself with a new armor of forests in less than 100 years.

"We have had the 100 years," he said, "and we still have a goodly chunk of forest property, and if it isn't here a century hence it is because we are not the sort of people to deserve the trusteeship of any such Gargantuan treasure."

Describing some of the 4,000 uses for the trees of Canada which the war had produced, he said that wood as a raw material is only in the kindergarten stage of utilization and adaptation. There is no substitute, and probably never will be, "for that strangely compact mass of fibre and cellulose we know as the common tree." In Canada, he proceeded, it holds first place as the country's filler of pay envelopes; it engages more capital investment than the next six of Canada's industrial phalanx.

Heartily endorsing Government action, he said that "if a century of exploitation is now to end and a century of conservation about to begin, the bill of costs for the transforming process cannot be loaded on industry alone, but must be shared by the state as a major beneficiary."

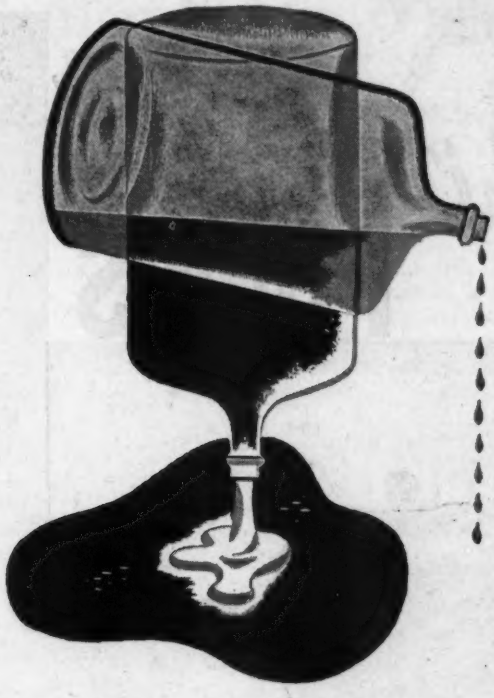
4-H Clubs Take Up Work

Members of the 4-H clubs, which are spreading rapidly throughout the province of Quebec, doing work in forestry comparable to that being done in agriculture by the 4-H Clubs of the United States, have held a two-day meeting in Quebec with the regional secretaries of the Quebec Forestry Association, drawing up a definite program of forest conservation. Particular study was given to a project for establishing permanent secretarial units in the different economic districts to foster educational work in the realm of forestry, and definite action along these lines is foreshadowed at an early date.

Paper Diapers Save the Day

The paper industry of Canada has saved the day for war brides being transported from England to Canada. The Army's Quartermaster-General acknowledged that he was stumped when faced with the problem of finding water to wash diapers for the babies of war brides on board ship, because of the limited supply of water on the ship set aside for this purpose. His staff studied the problem, and finally one member who in civil life was engaged in a paper mill, hit on the idea of supplying the ship with paper diapers. The idea clicked. So now the ship will be completely equipped with paper diapers which can be tossed overboard after use. Civil brides please note.

ONE OF 27 DOW CHEMICALS USED BY THE PAPER INDUSTRY



working with water "through thick and thin"

answering the problem of water thickeners . . .

Water frequently presents thickening problems when used in making products sold in solution.

Often these products must not only be thickened—sometimes they must also be thinned before use. In both operations, Methocel (water-soluble Dow Methylcellulose) easily meets requirements. Methocel works well with water "through thick and thin."

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This is only one example of an easy and effective application of Methocel, a water-soluble cellulose ether of exceptional purity and uniformity. Methocel can serve you well—as a dispersing, thickening, emulsifying, binding and coating agent. It may be the answer to many of your product problems. You can find out by asking Dow for complete information.

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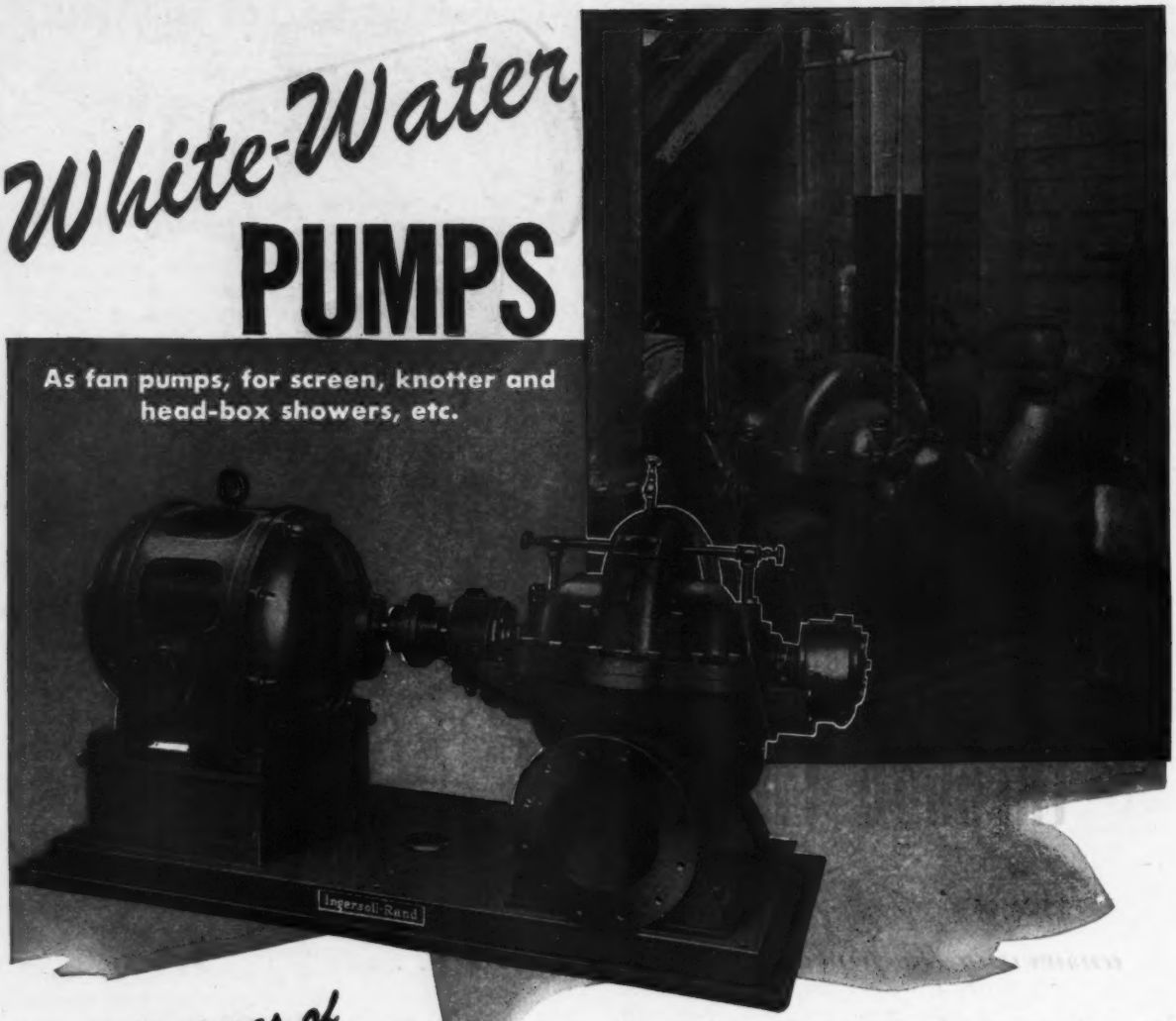
White-Water PUMPS

As fan pumps, for screen, knotter and head-box showers, etc.



Features of I-R WHITE-WATER PUMPS

- The double-suction impeller handles large volumes easily—and provides a completely balanced pump rotor.
- Special wearing-ring construction at the impeller entrances prevents binding due to pulp fibres lodging between the rings.
- Large ring-oil-lubricated ball bearings provide a smooth-running, friction-free rotor.

The white-water pump has an important job to do in the paper mill. It is usually a large capacity unit and it must stay on the job. Ingersoll-Rand double-suction pumps are ideal for this service.

They are also suitable for water supply, washer, condenser circulating and many other services. Let an I-R engineer tell you about them or any of the other I-R pumps for pulp and paper mills. Also ask him for a copy of Bulletin 7022—it was written for paper mill men. Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York 4, N. Y.

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COMPRESSORS • AIR TOOLS • ROCK DRILLS • TURBO BLOWERS • CONDENSERS • CENTRIFUGAL PUMPS • OIL AND GAS ENGINES

Wages Top Problem in Conn. Valley

Eagle Lodge and Holyoke Paper Makers Stick To Demand For 15 Cents An Hour Raise—Tissue Workers To Ask Same Boost—Buyers Seek To View Worthy Plant — Other Late Trade News.

HOLYOKE, Mass., December 2, 1945—The members of Eagle Lodge of Papermakers and the Holyoke paper mill workers union have rejected the counter proposal of the paper manufacturers for an increase of base rates of five cents an hour. The workers who met in a special joint session in the Caledonian hall voted unanimously to stand by their demand for 15 cents an hour. The action of the two unions at the largely attended meeting will be reported formally to Harold T. Martin, labor advisor of the paper manufacturers, by the joint negotiating committee when a meeting can be arranged this week. Both unions have asked for a strike vote and the 30-day cooling off period will expire December 14.

Andrew Beaton, president of Eagle lodge, presided and President John Dupre of local 226 Holyoke Paper Mill workers was on the platform and William Lemlein, president of the International Pulp, Sulphite and Paper Mill Workers union attended as did a number of delegates of the Central Labor union. Edward Moore, international organizer, also attended. The pulp and sulphite workers, mostly employes of the American Tissue Mills, Inc., will arrange for a conference to negotiate for the same increase demanded by the other unions.

Strathmore Workers Continue Demand

Workers at the two plants of the Strathmore Paper company in West Springfield and at the two in Woronoco, at a meeting held in Westfield last week, unanimously turned down a company offer of a five-cent an hour wage increase and voted to have the negotiating committee return and continue a demand for 15-cents-an-hour, Fred Rochford, representative of the International Brotherhood of Papermakers, AFL, said. The 350 employes in the four plants are members of the Tekoa Lodge, papermakers union. Rochford said that the Tekoa lodge was acting in accord with Holyoke lodge and that both had turned down the five-cent offer.

Bookbinders Get Increased Pay

The International Brotherhood of Bookbinders, local 48, has negotiated an agreement with the National Blank Book Company, Holyoke, for a 7½-per cent increase in wages beginning December 3. There has been no contract change, the announcement said, and the company has also requested that the 44-hour week be adopted. Also benefiting from the raise will be the office workers who get the same salary boost. Acceptance of the increase was voted by the union and ratified by the company.

Buyers View Worthy Plant

Declaring that the Worthy Paper company plant at North Agawam would soon change hands, Gorham Bliss, president, today stated that prospective buyers would view the plant soon. Bliss, whose plant has been the scene of labor unrest ever since half the personnel voted to obtain a union charter, said, "The plant will be sold very soon. I said some time ago that I would sell it and since that time I have received a number of offers."

Package Machinery Staff Stays Out

Members of the Package Machinery UE union, CIO, after having received letters from the company asking them to return to their jobs so that negotiations on wage increases can continue, held a meeting in Turn Verein hall last night and unanimously voted to remain out on strike until the dispute is settled, Leo Messier, union president, said last night. The 325 members who have been out on strike since Oct. 29, are seeking a 25 per cent wage increase. Last week an effort was made by the State Board of Arbitration and Conciliation to iron out the difficulties, but following a conference in Boston, it was announced that no settlement was reached.

Collins Staff Eats Venison

A venison roast for employes of Collins Manufacturing company, North Wilbraham, was served Sunday evening in the Athletic association recreational building by L. W. Reid, plant engineer, who brought the deer back from a recent hunting trip to Maine. An additional supply of deer meat was furnished by Superintendent John D. Tupper, who last week bagged a buck while hunting in Vermont. Aiding Reid in the preparation of the supper were the following: Charles A. Rais, company architect; C. A. Backus, chemist; David Murphy, plant electrician; Robert Foster and F. B. Reidy.

Labor Board Takes Hand at Brevard

BREVARD, N. C., December 2, 1945—The Ecusta Paper Corporation, manufacturer of cigarette paper, has been ordered by the National Labor Relations Board to "cease and desist" from discouraging its employes from joining a union. The board's order also applies to two Ecusta affiliates, the Champagne Paper Corporation and the Endless Belt Corporation.

The labor board ordered the reinstatement of 81 employes to their former positions or equivalent positions. Informed sources said the action was recommended by a trial examiner after a hearing upon charges of unfair labor practices filed by the International Brotherhood of Paper Makers (AFL).

Pollock Returns to Decotone

FITCHBURG, Mass., December 3, 1945—Lt. Commander John Pollock, who was with the Fitchburg Paper Company Decotone Division and on Military Leave for four years with the U. S. Navy, returned on November 26 to resume his duties as production manager of the Decotone Division.

American Writing to Erect Addition

The American Writing Paper Corporation will build a $3,000 addition to its Nonotuck division, the city's engineer's office disclosed recently. Casper Ranger has the contract.

The addition of a one-story building of cement blocks to the Nonotuck division will be for manufacturing purposes.

Explosion Damages Bergstrom Paper Mill

Estimate of Loss Placed At Between $80,000 and $100,000 and One Man Killed In Feed Water Heater Blast — Neenah Paper Co. Starts Work On Addition—Union Rejects K-C Co. Wage Proposal.

APPLETON, Wis., December 3, 1945—One life was lost and damage estimated at between $80,000 and $100,000 was caused at the Bergstrom Paper Company, Neenah, Wis., on Saturday evening, November 24, when a feed water heater behind the turbine exploded. The dead man was William Scherer, 52, Neenah, an engineer, who succumbed to burns.

The south and west walls of the turbine building were blown out, and steel supporting girders were twisted by the force of the explosion. Windows in the surrounding business district were shattered.

The blast in the 12-year-old structure, which housed three huge steam boilers and the turbine, disrupted lighting in the building, and the Badger-Globe mill of Kimberly-Clark Corporation, which uses steam generated at the Bergstrom plant, was forced to shut down from the time of the explosion until 11 o'clock the following evening. Workmen from the Kimberly-Clark mill arrived immediately to help clear away debris.

The steam boilers have been restored to operation, but the mill was not running late last week, and Nathan Bergstrom, vice-president, said he was unable to say when it would be. Three transformers have been set up on the company property near the damaged building, preparatory to resumption of operations through hook-up with outside power. Cause of the explosion has not been determined.

The major part of the damage, Mr. Bergstrom said, was to the building itself. He termed the machinery damage "not serious."

Wooden walls have been built around the switchboard and undamaged turbine, to protect them from the weather.

Two other men were in the plant with Mr. Scherer at the time of the explosion. They were Howard Larson, Neenah, a helper, and Carl Kuhn, Sherwood, also a helper. Neither was seriously hurt. Mr. Scherer died Sunday evening in Theda Clark Hospital, Neenah.

Neenah Co. Starts Work on Addition

Construction has been started on the $75,000 addition to the finishing room of the Neenah Paper Company, Neenah, Wis. The foundation has been completed.

The 4-story 70 by 90 addition will be of concrete and brick and will be used to house finishing material machinery and for storage. C. R. Meyers and Sons, Oshkosh, Wis., are the contractors.

Milwaukee Men Visit Kimberly-Clark Mills

One hundred Milwaukee businessmen and an equal number of business and civic leaders of Neenah and Menasha, Wis., visited the Kimberly, Wis., mill of Kimberly-Clark Corporation, Neenah, on November 28. It was the first of a series of postwar good will tours by the Milwaukeeans, headed by Irvin J. Ott, manager of the trade promotion division.

Framed citations were presented to the mayors of the two cities, "which are among Wisconsin cities farthest advanced toward a stabilized civilian economy," according to Mr. Ott. The tour was climaxed by a dinner-meeting at the Valley Inn, Neenah. Carl E. Palmen, marketing counselor was the speaker, and H. W. Adkins delivered Milwaukee's message to the Neenah-Menasha businessmen. Mayor Edward Kalfahs, Neenah, welcomed the delegation, and Edward Jandrey, Neenah, was master of ceremonies.

Lee Turley Goes to McLaurin-Jones

Lee Turley has resigned as advertising and sales manager of the Nekoosa-Edwards Paper Company, Port Edwards and Nekoosa, Wis., in order to become general sales manager of the McLaurin-Jones Company, Brookfield, Mass., manufacturers of quality specialties in the fine and wrapping paper fields. Mr. Turley held his position at Nepco for 11½ years. He was the founder of the Port Edwards Boys' Club. He will move his family to the east about the first of the year. They will reside at Ware, Mass., where one of the McLaurin-Jones plants is located. Mr. Turley will direct the sales activities from the main office at nearby Brookfield. The company maintains sales offices in New York, Chicago and Los Angeles, and has a separate export office in New York.

In accepting his resignation, John E. Alexander, president and general manager of Nekoosa-Edwards, said: "Mr. Turley's departure is a real loss to the Nekoosa-Edwards Paper Company, as we regret losing one that has been so closely associated with Nepco family affairs. He has been most active in his responsibilities, the accomplishments of which have been most beneficial to this company's and the community's welfare."

Mr. Turley was advertising manager for the Kalamazoo Vegetable Parchment Company at Kalamazoo, Mich., before going to Nepco.

Union Rejects K-C Co. Proposal

The International Brotherhood of Pulp, Sulphite and Paper Mill Workers and the International Brotherhood of Paper Makers have voted to reject the counter proposal offered by Kimberly-Clark Corporation, Neenah, Wis., in the negotiations for a general wage increase at the Lakeview and Badger-Globe mills, according to an announcement last week by Elmer P. Meinz, representative of the pulp workers.

The unions rejected the offer of a 5-cent increase, holding to their demand for a general increase of 15 cents per hour for all employes, stating that this demand is in line with the request made throughout the industry in Wisconsin, Michigan and Upper Michigan. The unions stated that they are calling for assistance of the United States Conciliation Service in an effort to reach an early settlement.

Urges Government Develop Fox River

Strong testimony in support of federal government action to develop and improve the upper Fox river from Oshkosh to Portage, Wis., was offered at a hearing in the former city Thursday afternoon, November 29, called by the United States Army

(Continued on page 22)

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Standard—Lump; Ground, 99% thru 8 mesh, 95% thru 10 mesh; Powdered, 95% thru 100 mesh.

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Solutions: From 38°—60° Baume — Wt. Ratio (Na_2O to SiO_2) from 1:2.00—1:3.40

Appearance: Opalescent to clear.

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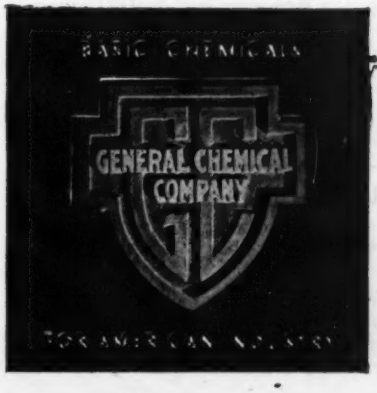

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In Wisconsin: General Chemical Wisconsin Corporation, Milwaukee, Wis.
In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

Westfield River Buys Glassine Plants

RUSSELL, Mass., November 29, 1945—The Westfield River Paper Company, Inc. has acquired the entire ownership of the Glassine Paper Company at West Conshohocken, Pa. Westfield River, through its purchase of the Glassine company with mills at West Conshohocken and Manayunk, will have five machines operating exclusively on glassine and greaseproof papers, and become the third largest factor in the glassine industry. The purchasers have also a program formulated which will considerably increase the productive capacity of the mills which they are acquiring.

It is the intention of the new owners to manufacture the same high quality glassine and greaseproof papers at their new plants as they have been making in the past at their Russell and East Lee mills. These will include not only plain, but waxed, laminated, embossed, colors, and in fact all types required for the packaging of frozen and perishable foods of all kinds, and all products requiring greaseproof, moisture-vaporproof, flavorproof, insectproof and wet strength protection.

The record of service in developing new products, made by both companies, will be maintained at the highest degree of efficiency. Both companies maintain fully equipped laboratories with specially trained technical personnel for complete testing of all packaging methods. By combining these resources the Westfield River company, now offers complete packaging service for all products requiring unique protective qualities.

The officers of the Westfield River Paper Company, Inc. are: Paul F. Moore, President and General Manager; Leif B. Norstrand, Vice President; and John J. Costello, Secretary-Treasurer.

Commander Robert F. Nelson, former president of the Glassine companv, and George T. Fritz, vice-president and treasurer, have announced their resignations, the latter having decided to retire from the paper industry. C. M. Connor, vice-president and general manager will be retained in the management of the Glassine Paper company mills, as will the services of other personnel of the company.

Johnson Joins Wyomissing

READING, Pa., November 29, 1945—Sam R. Fry, President, Wyomissing Glazed Paper Company has appointed H. W. Johnson, formerly of the Gair Bagota Division of the Robert Gair Company and more recently with OPA as Chief of the Container Unit and Acting Chief of Converted Paper Products Unit, to the Wyomissing Sales Staff. As of December 1, Mr. Johnson will be in charge of the New York Office of the Wyomissing Glazed Paper Company, located at 180 Madison Avenue, which handles the distribution of Wyomissing Products in the Metropolitan District as well as the New England States.

Maine Workers Get 5-Cent Increase

LIVERMORE FALLS, Me., November 29, 1945—Union officials at the International Paper Company Mill have announced a general five-cents-an-hour pay increase affecting nearly 1,000 employees. It was disclosed by an International representative of the Brotherhood of Pulp, Sulphite, and Paper Mill Workers, AFL, that following negotiations with the mill management, a new base rate of 75 cents an hour for male workers, and 68 cents for women, would become effective. The Brotherhood of Firemen and Oilers also participated in the negotiations.

Sets Canadian Pulpwood Minimum

WASHINGTON, D. C., December 5, 1945—A recommendation that 1946 allocations of Canadian pulpwood to the United States be set at a minimum of 1,250,000 cords, the same minimum that prevailed during 1945, 1944 and 1943, was submitted to the Civilian Production Administration by the Canadian Pulpwood Industry Advisory Committtee, CPA said today.

While the 1945 export quota of Canadian pulpwood was established at a 1,250,000 cord minimum, it was increased by a supplementary allocation of 550,000 cords during the year. It is possible that a similar supplemental quota will be granted by Canada sometime in 1946, CPA officials predicted. The exact amount of the supplemental quota is not expected to be determined until after the close of the Canadian pulpwood production season, which usually terminates in June.

The committee's recommendation followed a presentation by Civilian Production Administration officials of difficulties facing the Canadian pulpwood industry. Spokesmen for CPA's Forest Product Division reported that Canada apparently does not have sufficient reserves to meet any stoppages in production occasioned by unusual weather conditions or to meet any other vagaries that attend woods operations.

Adding to these factors, they emphasized Canadian reports of a manpower shortage. Employment figures revealed that in September 1945 there were more men in the woods than a year ago, but employment is now dropping and in many sections is less than in 1944. The St. Lawrence River area manpower situation is particularly acute, CPA stated.

While optimistic on the long term outlook, government officials stated that unless this Canadian manpower situation is corrected, it will act as a brake on pulpwood production over the next six months.

Coating Mills Erects New Plants

ELKHART, Ind., December 3, 1945—In addition to the new carton plant of the American Coating Mills, under construction adjacent to the main paperboard mill here, a $400,000 Chicago plant is under construction, and still another postwar factory project is tentatively planned for New Brunswick, N. J., it was learned today.

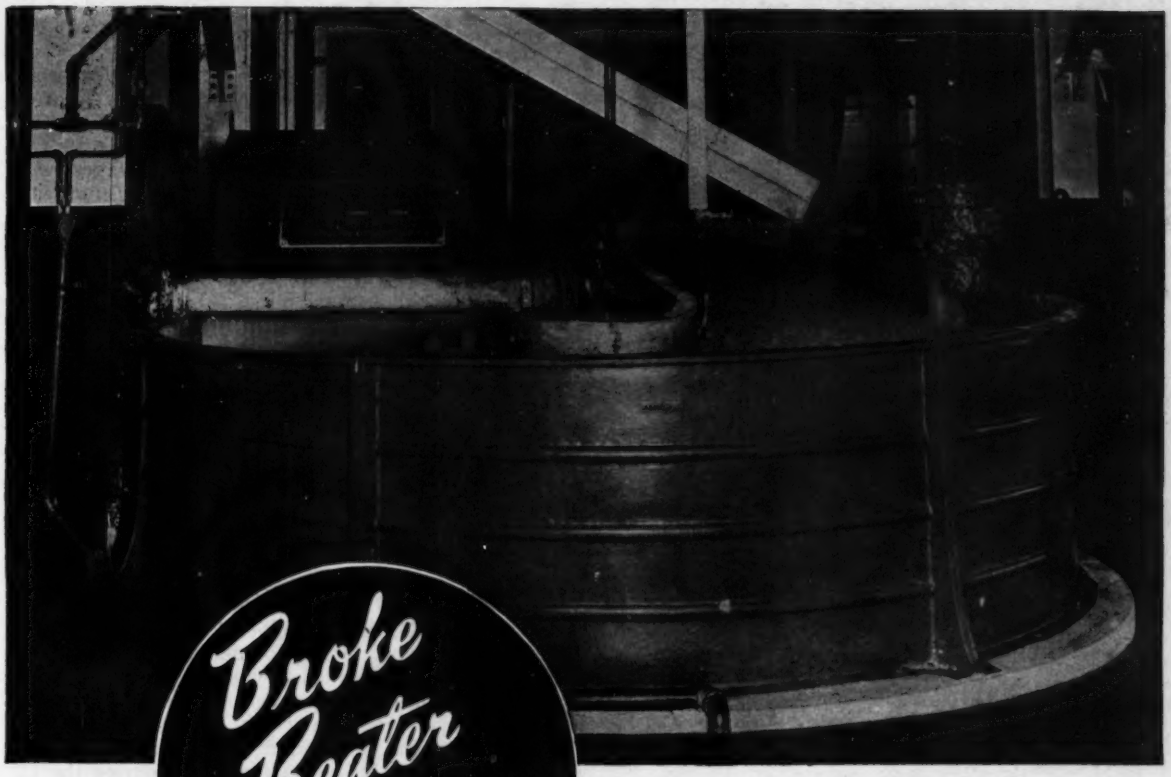
A 75,000 square foot plant, in connection with the company's Modern Package, Inc., at Memphis, Tenn., had been previously announced.

In spite of the materials and manpower situation, and now the weather, "encouraging progress" is being made in the new plant construction, it was stated. Both the Elkhart and Chicago plants are being built by the Sollitt Construction Co.

The Chicago project, a structure with 80,000 square feet of floor space, is being erected at Kolmar and Roscoe on Chicago's northwest side. Offices now in the Wrigley building, and manufacturing facilities now housed in rented quarters at 312 North May, are to be moved into the new office and factory building, it is disclosed.

Sandy Hill Gets Foreign Order

HUDSON FALLS, N. Y., December 1, 1945—The Sandy Hill Iron & Brass Works has received an order from South America which calls for a machine to be used for various grades of tissue and a board machine. The contract was placed through the agency of Dr. Juan Swoboda, of Buenos Aires, and Walter Geisler, of Montreal, who visited the plant this week.



VALLEY has long been synonymous with high-performance beaters of all types. Here is one of a number of late pre-war installations of the famous Valley Broke Beater.

Our complete line includes Broke, Breaker, Paddle, Vortex and Hi-Speed Beaters of all sizes—as well as laboratory and semi-commercial beaters. Inquiries will be given full and careful attention.

VALLEY IRON WORKS COMPANY
APPLETON, WISCONSIN

Slices and Head Boxes • Screw Presses • Micro-Mist Spray Dampeners • Laboratory Equipment
Pulp Washing Systems • High-Speed Beaters • Breaker Beaters • Vortex Beaters • Plug Valves
Flat and Rotary Screens • Thickeners • Deckers • Paper Markers • Roll-Headers

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending December 1, 1945

STOCKS

	High	Low	Last
A. P. W.	9¼	8⅝	9¼
Armstrong Cork Co.	55⅛	52⅞	55⅜
Celotex Corp.	22	19¾	21¾
Celotex Corp., pf.	21¼	20¾	21
Certain-Teed Products Corp.	15⅜	14⅛	15⅜
Certain-Teed Products Corp., pf.	...	...	...
Champion Paper & Fibre Co.	50½	48½	50½
Champion Paper & Fibre Co., pf.	110⅝	110½	110½
Congoleum Nairn Co.	34⅜	33⅜	34¼
Container Corp. of America	39¼	36½	38⅜
Continental-Diamond Fibre Co.	16⅛	15⅜	15⅞
Crown-Zellerbach Co.	29	28½	28⅞
Crown-Zellerbach Co., pf.	109	107	109
Dixie Cup Co.	46⅛	45	45
Dixie Cup Co.—A	55	53½	55
Flintkote Co.	36¾	35⅝	36⅝
Flintkote Co., pf.	110	110	110
Robert Gair	10⅛	9½	9⅞
Robert Gair, pf.	19¾	19⅛	19⅛
International Paper Co.	44	41⅛	42½
International Paper Co., pf.	115½	113¾	115½
Johns-Manville Corp.	142	137½	142
Johns-Manville Corp., pf.	133	132	132
Kimberly-Clark Corp.	65½	61¾	65½
Mac Andrews & Forbes	35¼	35	35
Mac Andrews & Forbes, pf.	153½	153	153
Masonite Corp.	61¾	58¼	60¾
Mead Corp.	21⅝	19	21¾
Mead Corp., pf. A—6%	105½	104½	105½
Mead Corp., pf. B—5½%	106	104	104
National Container Corp.	28½	25⅜	27½
Paraffine Companies, Inc.	80	80	80
Paraffine Companies, Inc., pf.	110	108¾	109½
Rayonier, Inc.	23¼	22½	22⅞
Rayonier, Inc., pf.	38	37⅝	37⅞
Ruberoid Co.	46	45¾	45¾
Scott Paper Co.	56½	55½	56½
Scott Paper Co., pf.	...	...	...
Sutherland Paper Co.	40	39⅜	39⅜
Union Bag & Paper Corp.	25⅝	23¾	25½
United Paperboard Co.	10⅝	9½	10
U. S. Gypsum Co.	105½	99¼	104½
U. S. Gypsum Co., pf.	...	...	...
West Virginia Pulp & Paper Co.	36	34½	36
West Virginia Pulp & Paper Co., pf.	115	114	114

BONDS

Abitibi Pulp & Paper Co. 5s '53	112	112	112
Celotex Corp. 3¾s '55	...	...	...
Certain-Teed Products Corp. 5½s '53	...	...	...
Champion Paper & Fibre Co. 3s '65	103½	103	103
International Paper Co. 6s '55	107½	107½	107½
International Paper Co. 5s '47	103	102⅝	102⅝
Mead Corp. 3½s '53	...	...	...

New York Curb Exchange

High, Low and Last for Week Ending December 1, 1945

STOCKS

	High	Low	Last
Great Northern Paper Co.	43¾	42	43
Hummel-Ross Fibre Corp.	12⅛	11⅛	12
St. Regis Paper Co.	11	10½	10⅞
St. Regis Paper Co., pf.	...	...	...
Taggart Corp.	11¼	9	10¼

BONDS

American Writing Paper Co. 6s '61	102¼	101¾	102¼

Keyes Fibre Declares Dividend

WATERVILLE, Me., November 29, 1945—Directors of the Keyes Fibre Company have voted to declare a dividend of $1.50 a share on all preferred stock payable December 1, to stock of record November 24. This payment will apply against existing accumulations. At the same time, the directors declared a $1.50 dividend on all shares of prior preferred stock, payable January 1, 1946, to stock of record December 24, 1945.

S. D. Warren Nets $3.64

The S. D. Warren Company for the nine months to September 30, reports a net income of $369,521, equal to $3.64 a common share, compared with net income of $728,081, or $7.18 a common share, for the full year ended on Dec. 31, 1944, which included $190,350 tax saving arising from sale of fixed assets by wholly owned subsidiary.

Bathurst Profits Hold Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 3, 1945—Net profit almost equal to that in the like period of last year is shown by the Bathurst Power and Paper Company Limited for the nine months ended September 30, 1945. The profit, after depreciation and taxes, was $259,182, or 65 cents per "A" share, as compared with $262,521, or 65½ cents per share.

Current assets as at September 30, 1945, were $5,010,421 while current liabilities were $711,415, indicating net working capital of $4,299,006 against $4,258,531 on June 30. Cash and marketable securities were $884,723 against $942,440.

Net earnings for the nine months, before depreciation and taxes, were $834,862 against $837,915. Provision for depreciation and depletion was $375,871 against $396,935, and tax provision was $199,809 against $178,459.

Indicated third quarter net profit, obtained by comparing the nine-month figures with those for the first six months, amounted to 21 cents per "A" share, against 24 cents in the third quarter of last year.

Hinsdale Plants Back at Work

HINSDALE, N. H., December 1, 1945—About 200 employes of four local papermills and one paper-converting plant returned to work this morning with a general ten-cent hourly wage increase after having been on strike for two weeks. Effective today the workers also get a two-cent differential during the 3 p.m. to 11 p.m. shift and four cents during the 11 to 7 shift. The workers had struck for a 15-cent raise and had rejected an eight-cent compromise offer.

Edward M. Moore represented the workers who met last night and voted to accept the offer made at a conference with the management yesterday. The mill owners were represented by Harold T. Martin, labor relations adviser.

Paper Corp. Elects New President

CHEBOYGAN, Mich., December 1, 1945—The Paper Corporation of America today announced the election of I. Lawrence Lesavoy, as president of the corporation. A meeting of the entire personnel of the corporation will be held in Cheboygan tomorrow.

A. W. P. Corp Calls Bonds

The American Writing Paper Corporation has called for redemption on January 1, 1946, $500,000 principal amount of its outstanding general mortgage bonds due in 1961. Payment, at par and accrued interest, will be made at the office of the Chase National Bank of the City of New York, trustee.

Crown Zellerbach Nets $1.10

The Crown Zellerbach Corporation reports that it earned $1.10 a share on common stock in the six months through October, up 10 cents from a year ago. Sales for the first half of the current fiscal year were $50,128,298, against $50,000,759.

Schumacher Earns 81 Cents

The Schumacher Wall Board Corporation for the six months to October 31, reports a net income of $79,467, equal to 81 cents a common share against $77,290, or 76 cents a common share, for six months to October 31, 1944.

3 Distinguished Members OF A FAMOUS FAMILY

WALWORTH Bronze Valves

Walworth No. 95 can be used where throttling *is not* required. It is rated at 150 lbs. steam pressure at 500°F, and its improved renewable disc and lock-on, slip-off disc holder — an original Walworth development — saves time and trouble.

Walworth No. 225P is rated at 300 lbs. steam pressure at 550°F. With stainless steel, plug type discs — heat treated to a hardness of 500 Brinell — it can be closed on sand, slag, scale and similar flotage, without injuring the seating surfaces.

Walworth No. 29 is a double disc taper seat gate valve with a rising stem and union bonnet. It is rated at 200 lbs. steam pressure at 550°F. Valves can be repacked under pressure when fully opened.

These Walworth Quality Bronze Valves provide maximum protection against leakage by their union bonnet type construction, seats and discs of proper design, deep stuffing boxes, and tough bronze bodies. Further, they can be repacked under pressure when fully opened. Walworth Quality Bronze Valves are available in a full range of types and sizes, engineered to fit every service requirement.

For full details, write today — on your company letterhead — for Walworth Catalog 42.

14 AWARDS TO 4 PLANTS

WALWORTH
valves and fittings
60 EAST 42nd ST., NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

STEVENS GOES TO B. & P.

(Continued from page 7)

board of directors and was likewise in charge of all sales and production. Mr. Stevens was also with the St. Regis Paper Company for a period of four years and prior to that time spent four years with the ammunition and container division of the American Can Company as its purchasing agent. Experienced in both

CARL W. STEVENS

the buying and selling of paper and allied products, Mr. Stevens takes over a new and extensive department which Bermingham & Prosser have announced will carry the same high standard of quality and representative character as the fine paper lines it has so successfully merchandised for so many years.

Capital Opens Sales Convention

INDIANAPOLIS, Ind., December 3, 1945—The Capital Paper Company here today opened its annual sales convention, to be held four days. C. V. Jewell, vice-president and general sales manager, is in charge. The program will consider postwar needs in the paper industry. Many new items, those particularly developed in the war, will be considered.

Managers and their sales staff from branch houses in Louisville, Columbus, O., and Terre Haute, Ind., are attending.

Among the speakers will be John Richey, secretary of the Central Middle States Wrapping Paper Association, Cincinnati; Edgar Hall, vice-president of the Paper and Twine Association, Cincinnati, and E. J. Durkin, vice-president of the Tanglefoot Company, Grand Rapids, Mich.

Bradley Returns to Union Bag

Sydney K. Bradley, until recently a lieutenant colonel in the Army, has returned to Union Bag & Paper Corporation. Col. Bradley had served for the past three years as a staff officer assigned to the Headquarters, Army Service Forces, in Washington, D. C., under the command of General Brehon B. Somervell. Col. Bradley's last assignment in the Army was Chief of the Purchase Progress Branch, Production & Purchases Division, A.S.F. Bradley had been with Union Bag & Paper Corp. for five years prior to his entering active duty with the Army.

Publishers Set Up Newsprint Pool

The newspapers of the United States will see that no newspaper suspends publication for lack of newsprint after government control on consumption ends on December 31, 1945. This was the decision reached last week at a conference in New York City of representatives of regional and state newspaper associations from all parts of the country. There was expression unanimously that the newspapers would meet problems of newspapers faced by suspension because of lack of newsprint through regional and state plans handled on what has been worked out by the New England Daily Newspaper Association.

W. G. Chandler, president of the American Newspaper Publishers Association, presided at the conference called by the ANPA Special Newsprint Committee of which he is chairman.

After a series of twenty-five questions and answers had been presented to outline the present newsprint situation there was considerable discussion by association representatives concerning details of the New England plan which seeks to make available up to three per cent of the New England newspaper newsprint consumption in 1946 to care for any distressed newspaper which may find itself without any newsprint supply.

President Chandler said:

"We recognize that no formula of national application will operate with absolute equity. The function of this Committee is not to recommend a program that makes for the survival of the fittest, but rather to find ways and means that all publishers may survive. Estimates indicate there is available for newspapers overall not more than 95% in tonnage of the newspaper use in 1941."

Edwardes Talks to Superintendents

GLENS FALLS, N. Y., December 1, 1945—A meeting of the Paper Mill Superintendents' Association was held here last week at which an address on fiber retention and the Sveen System was given by Richard Tutt, of the Peter Copper Corp., of Gowanda. R. E. Wynn-Roberts, president, presided.

Among the guests were Vance P. Edwardes, of Corinth, national president of TAPPI, who spoke on the annual meeting scheduled for February and Herman Liedberg, of New York City, who related about his recent visit to Norway. Another guest was Johan Ritcher, of Oslo, Norway, who spoke on the possibility of reopening trade relations. He pointed out, however, that the price of pulp in this country and efficient operation of mills would make it difficult for his country to deliver at a price to compete.

Time to Build Research Plant

Time Incorporated, publisher of *Time, Life, Fortune* and the *Architectural Forum* has purchased an 18-acre tract of land in Springdale, Conn., on which an experimental laboratory and machine shop, with a floor space of 33,000 square feet, will be erected.

The work to be done in the new laboratory according to Charles Stillman, treasurer of the publishing company, will be principally experimental and will complement that planned by the Bryant Paper Company, wholly owned subsidiary of Time, Inc. in its recently announced new laboratory in Kalamazoo, Mich.

The Springdale building is scheduled for completion in April of 1946 and it is expected that approximately 125 people will be employed by the end of next year.

ADVENTURES IN THE "MARGIN OF EXPERIENCE"

Glass Making—

Number 4 in a Series depicting the industries served by the products of Niagara..." An Essential Part of America's Great Chemical Enterprise".

AN INDUSTRY WITH IMAGINATION

During the past few years the glass industry has shown dramatically that new research and energetic product development can transform an ancient and seemingly "static" material into a brand new material with almost unlimited possibilities.

For example, in addition to its traditional applications, glass is now an important building material...a textile fibre for wearing apparel and fire resistant draperies and upholstery fabrics...an insulating material for home construction and electrical appliances...it has even been given elastic properties! Yet these are but a few of the many new uses and qualities of glass.

While research and product development did the *work*—it was the long and valuable experience gained through years of patient study and experimentation with glass that made such progress possible. As a source of supply for glass working materials, Niagara has helped to provide that "Margin of Experience" out of which the new developments have come.

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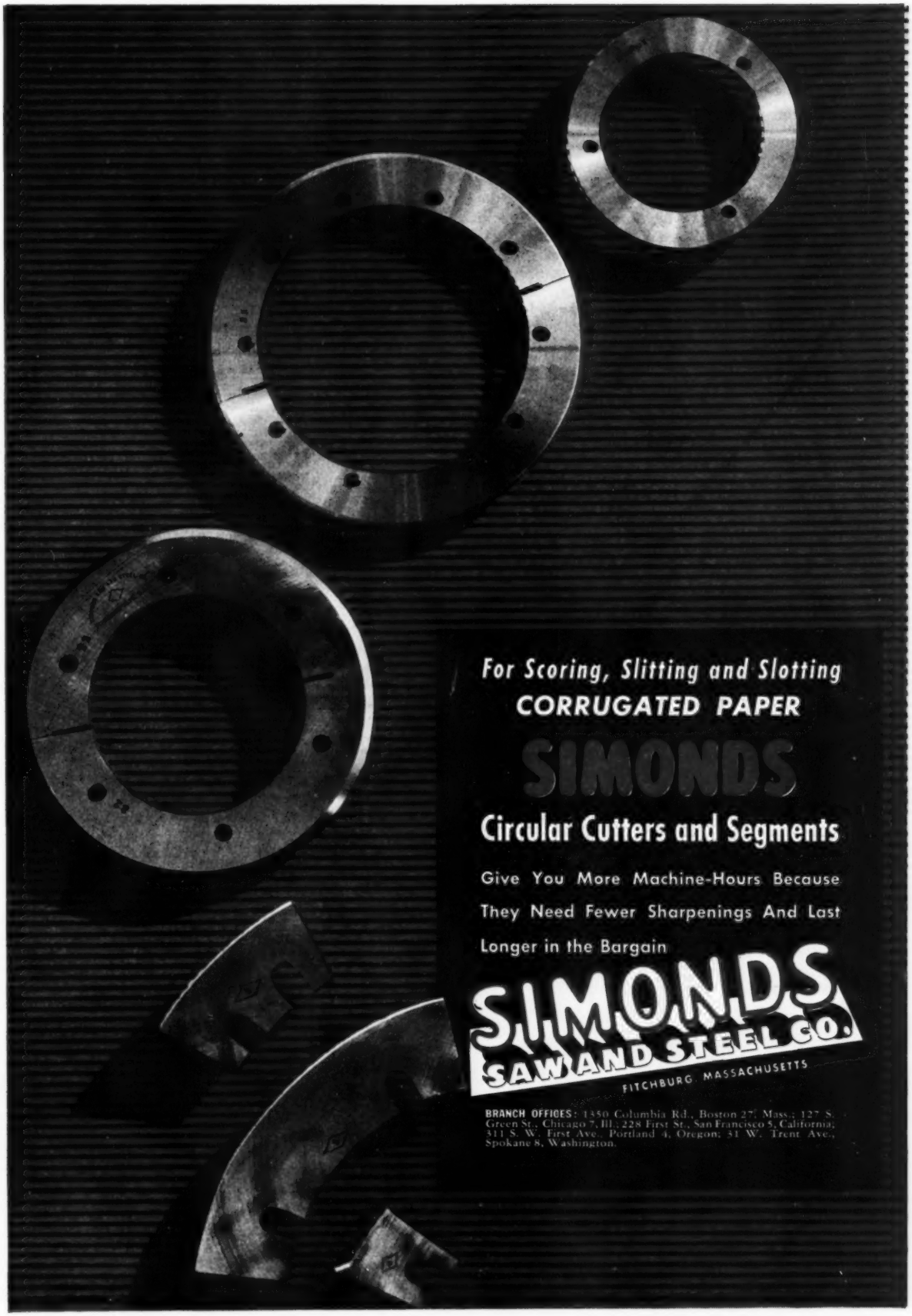
Carbonate of Potash • Liquid Chlorine • Niathal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BRANCH OFFICES: 1350 Columbia Rd., Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 228 First St., San Francisco 5, California; 511 S. W. First Ave., Portland 4, Oregon; 51 W. Trent Ave., Spokane 8, Washington.

I.P.C. Grants Wage Boost

GLENS FALLS, N. Y., December 1, 1945—General wage increase of five cents an hour in the specialties division of the International Paper Co. was agreed upon following a meeting this week of labor representatives and officials of the firm. The increase becomes effective immediately and benefits several thousand employes in branches at Tonawanda, Niagara Falls, Ticonderoga, Palmer, Livermore Falls, Me., and York, Pa. In addition to the increase the company consented to open negotiations again if and when there is a return to the forty-hour-week. It was stated that there is still a labor shortage existing in the industry. The unions had originally asked for a general increase of fifteen cents an hour.

Among those conducting negotiations were John P. Burke, president of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers; Matthew J. Burns, president of the International Brotherhood of Papermakers; Charles Miller, labor official from Buffalo; Stewart Kay, general manager of manufacturing for the specialties division; George J. Adams, industrial supervisor, and William D. Maxim, division manager.

More Paper For Civilian Use

WASHINGTON, D. C., December 5, 1945—An increase in the availability of paper for civilian needs has been made possible through a decrease in government "set aside" reserves of paper production from 20% to 10%, effective December 1, 1945, the Civilian Production Administration announced today.

Today's action marks the second reduction in government reserves of paper production within the past two months. The previous move cut government reserves of rag content papers from 35 per cent to 20 per cent on October 4, 1945.

The current relaxation, which was effected through an amendment to the paper and paperboard conservation order (M-241), applies to all types of paper of all grades and classes, CPA said.

Explosion Damages Bergstrom Mill

(Continued from page 12)

Board of Engineers. It was conducted by Col. McDowell Weinert of the Milwaukee engineers' office to determine whether there should be any change in the navigation project of the government on the upper Fox.

All persons appearing before the board urged a development, rather than abandonment of navigation.

Mayor George F. Oaks of Oshkosh said that when the St. Lawrence seaway is completed the whole area on the upper Fox will "look to Green Bay as our seaport" and will demand navigation facilities to connect with the Great Lakes system.

Leo Promen, Fond du Lac, Wis., representing the new Fox-Wolf River Control Association, said that better maintenance and improvement of the upper Fox would produce benefits such as flood control. It was also pointed out that paper mills and other industries in the lower Fox area would benefit through better water storage conditions.

Ralph Kehl Addresses Supervisors

Ralph Kehl, Lakeview mill manager, was the principal speaker at the Supervisors Club Thursday evening, November 29, in the Knights of Pythias hall at Neenah, Wis. The club has a membership of 95.

Obituary

W. J. LaCrosse

HOLYOKE, Mass., November 29, 1945—Waldo J. LaCrosse, 52, of Alvord St., South Hadley Falls, a salesman for the American Writing Paper Corporation for 26 years and a World War I veteran, died the 13th at the Peter Bent Brigham hospital in Boston. He had been ill for ten weeks.

A native of South Brewer, Me., LaCrosse was employed at the Eastern Manufacturing Company there before serving in the first World War as a first lieutenant. In 1919, he became a salesman for American Writing Paper Co. and for a time was manager of the Cincinnati office of the company covering the central states section. On the closing of that office LaCrosse remained as salesman in that territory working out of the company's main office here.

William A. White

William A. White, Superintendent of the Nabisco Paper Company, Long Island City, N. Y., died at his home in Clifton, N. J., on Tuesday morning, November 6, after an illness of several months. Interment was at Oak Hill Glendale, Ohio. Mr. White is survived by his wife, the former Louise Westendorf of Ohio; two daughters, Misses Roberta and Mary Louise White; and two sons, Lieutenants William and Charles White, who are on duty in the Pacific area.

Mr. White was formerly superintendent with the Clifton Paper Board Company for a period of twelve years. He was also associated with the Inland Paper Board Company of Versailles, Conn., for a number of years.

Theodore J. Bowes

Theodore J. Bowes, chemist for the Onyx Oil and Chemical Company, Jersey City, N. J. died recently. Mr. Bowes was born in Philadelphia, Pa. on October 8, 1890 and graduated from the University of Pennsylvania in 1912. He was formerly with the Richards Chemical Company, Flood & Conklin, Inc., and the Aqua Sec. Corporation. He was a member of the Technical Association of the Pulp and Paper Industry.

Francis J. Hamilton

Francis J. Hamilton, sulphite superintendent of the Powell River Company, Powell River, B. C., passed away recently. He was born in Belfast, Ireland, on September 24, 1903, and was formerly with the Riordon Pulp Corporation, Canadian International Paper Company and Steinhangen and Saenger (Poland). He was a member of the Technical Association of the Pulp and Paper Industry.

Pierre L. Sullivan

Pierre L. Sullivan of P. L. Sullivan & Son, paper stock dealers, 225 Wood street, passed away on Thursday last in St. Mary's Hospital. He was 65. The business which was founded in 1860 by his grandfather, will be continued by Lawrence Sullivan, his son.

The funeral services were held Tuesday, with solemn requiem mass at St. Timothy's Church. Burial was in Holy Cross Cemetery.

He is survived by his wife, Mary Elizabeth, a son, Lawrence, two daughters, Mrs. John Blisard and Mrs. George Steinmetz, and a sister, Mrs. Helen Dold.

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Revises Specifications on Sacks

The following information on the revised Federal Specification UU-S-48, recently issued, was prepared by B. W. Scribner, Chairman of the Paper and Paper Products Committee, Federal Specifications Board.

This specification assumed considerable importance during World War II because of the extensive substitution of paper sacks by the Army, Navy and Lend Lease for containers made from critical materials such as metal, wood and textiles. The sacks have given such satisfactory service that the substitution will probably be largely continued.

With the experience gained in the use of the original specification, which was issued in October 1943, it was found desirable to revise it in some respects, and this was done with the assistance of the same Task Group, representative of the shipping sack manufacturing industry and appointed by the War Production Board, that collaborated in the development of the original specification. The important changes are as follows:

Instead of a general reference to the Federal Specification UU-P-271, Paper; Kraft, Wrapping, Waterproofed, for such paper to be used in the sacks, Type C of that specification is now specified, as it was found that this type alone is generally used for sacks. It consists of two sheets of uncreped kraft paper cemented together with asphalt.

The requirement for adhesion of waterproof adhesive, used in the sacks when specified, was made more specific by use of a proposed TAPPI test method. After the seams or folds cemented together with the adhesive have been wetted, they are separated and the percent of separation that occurs without fiber failure of the paper surface is noted.

The compound used for dipping the ends of sacks to make the folds water resistant is now specified as a microcrystalline type of wax having a melting point of not less than 140° F.

OPA Ups Pulpwood Ceiling

Increases ranging from $1 to $2 a cord have been granted in the ceiling prices for pulpwood produced in Michigan, Wisconsin and Minnesota. The increases, effective November 29, 1945, are granted by OPA to compensate for higher labor costs and insure continued production of this vital commodity. Ceilings for paper and paper products made from this pulpwood are not changed by today's action. The new ceilings range from $10 to $20 a cord, depending on the species of wood and whether it is rough or peeled.

The wage increases necessitating today's price ceiling changes amount to ten cents an hour for labor in woods operations of the companies producing most of the pulpwood in the three states affected. Studies by OPA showed that this extra labor cost could not be absorbed by producers without a price increase.

Palmer Brotherhood Elects Lucia

PALMER, N. Y., December 1, 1945—Harry Lucia has been elected president of local branch of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Other officers chosen at the recent election include Francis Hickey, vice-president; Arthur Nott, recording secretary; Horace Fenton, financial secretary; Harold Boutelle, treasurer, and G. H. Copeland, trustee.

Philadelphia Stops Waste Paper Drive

PHILADELPHIA, Pa., December 3, 1945—Philadelphia's waste paper salvage campaign ended officially on Friday last, it was announced by L. K. Boutin, business manager of the Philadelphia Waste Paper Salvage Committee. At the same time he announced that the committee has terminated its activities. Collections this year in Philadelphia topped the state, and Nation, the committee reported. Figures showed an average of 20 pounds per capita here, as against 13 plus for Pennsylvania, and seven plus for the Nation.

In disbanding, the committee extended its thanks to the city's newspapers, radio stations, the Mayor, Bureau of Police and Department of Street Cleaning and Highways, the Waste Paper dealers, Scouts, school students and other agencies which helped Philadelphia attain top rank. Mr. Boutin was awarded a Meritorious Service Citation by Julius A. Krug, War Production Board head, for his part in the campaign.

Simmonds Says Farewell to Fitchburg

FITCHBURG, Mass., December 3, 1945—George R. Wallace, President of Fitchburg Paper Company, gave a farewell dinner at the Fay Club recently in honor of Herbert Simmonds who is going with the Paper Corporation of the United States on January 1. Mr. Simmonds was tendered a beautiful gold watch and chain in application for his twelve years of service to the company and the large part that he played in the creating of its sales policy. This policy will be continued and Mr. Wallace has announced that Lt. J. G. John W. O'Connor, who is expected out of the Navy in a few weeks has been appointed General Sales Manager of the Fitchburg Paper Company and Decotone Products. Mr. Wallace also announces with regret the resignation of Mr. Bertram D. Blake, Manager of their New York office.

Murphy-Buist Is Dissolved

LOS ANGELES, Cal., December 3, 1945—Dissolution of the partnership of Murphy and Buist as of December 1, 1945, was made known this week in letters to the firm's trade. It is succeeded by separate agencies, handling lines which the firm formerly represented.

The Gordon Murphy Co. will represent the Fox River Paper Corporation, District of Columbia Paper Mills, the Gardner-Richardson Company, Bulkley Dunton & Company, and Cofax Corporation, and maintain offices at 667 I. W. Hellman Building, 124 West Fourth Street.

Norman A. Buist will continue to represent McLaurin-Jones Company, Crocker Burbank Papers, Incorporated, Lowe Paper Company, A. M. Collins Manufacturing Company, and Narragansett Coated Paper Corporation, with offices at 124 West Fourth Street.

Shanghai Firm Sees Big Demand

The Central Engineering and Merchandising Company of Shanghai, China, formed in 1941, has now extended its activities to Tienstin, Nanking, Hankow, Peking and Tsingtao. Its directors, who were active for many years in Shanghai, report that there is a need for American machinery in the territory they serve and suggest immediate action on the part of manufacturers interested in exploiting their products in China.

O.K. of a Great Critic...

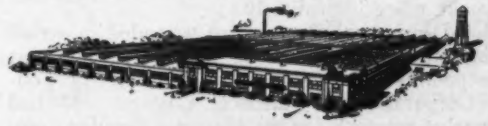
A WHOLE PLANTFUL OF THEM WHO BUILD MOTORS TO SATISFY EXACTING BUYERS!

Other plants may turn out *more* motors than the Star Plant. But you'll find no *better* motors . . . for when you see the Star Trademark you see the "O.K." on the efforts of hundreds of meticulous craftsmen working to critical standards.

Among them are the men who own the company. For Star's owners are born motor men, and the place to find them is out in the plant or around a drawing board, helping to make Star Motors as good as they can be.

Everybody at Star is exacting about quality . . . in design, materials, workmanship. There's a craftsman's spirit everywhere that words can't cover. But motor buyers who visit us always comment on it. And exacting motor users recognize that Star does things a bit better by specifying Star where a motor must be better than "good enough".

WRITE FOR 8-PAGE DIGEST. It outlines Star Motors (⅛ to 200 HP) and Generators (to 150 KW) . . . names hard-to-satisfy buyers who are long-time customers . . . tells how Star becomes the "Motor Department" for customers. Star Electric Motor Co., 242 Bloomfield Ave., Bloomfield, New Jersey.



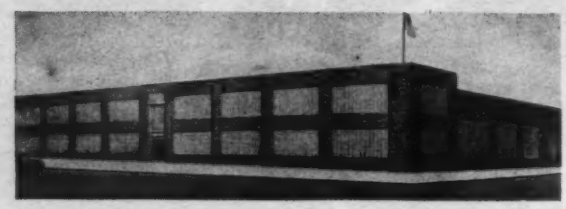
STAR MOTORS

POWER PACKAGED AS YOU NEED IT

Heppenstall Plant Without Windows

PITTSBURGH, Pa., November 29, 1945—Indicative of the ultra-modern trend in industrial construction, the new research laboratory of the Heppenstall Company will be without a single window.

Instead of depending on windows for light and ventilation, the research workers will conduct their experiments in a completely air conditioned environ-



ment. They will have brilliant illumination on their tables and tools from powerful fluorescent fixtures recessed into the acoustic ceiling. According to James C. Hartley, director of research, a greatly expanded testing program for all types of steel forgings, shear and chipper knives will be made possible through the acquiring of a comprehensive variety of testing equipment.

Brooks Forms New Rotameter Company

LANSDALE, Pa., November 29, 1945—Stephen A. Brooks and seven associates, each with extensive experience in rotameter manufacture and application, have organized the Brooks Rotameter Company, a corporation capitalized at $100,000.00. A factory with 18,000 square feet of floor space has been acquired and manufacture has been started upon all types of rotameters for flow rate measurement and control.

Brooks is a graduate chemical engineer with wide experience in chemical manufacturing and instrumentation. For the past six years he has been vice-president of Fischer & Porter Company in charge of sales and advertising. The eight men founding this new Company have an aggregate of 40 years' of experience in rotameter engineering, an average of 5 years per man.

Harry H. Long will be chief fluids engineer in charge of specifications and calibration. He will be assisted by James Anthony and Joseph Ducsik who have had many years' experience in specifying and calibrating rotameters. Garbutt W. Aiman will be in charge of precision rotameter tube manufacture. Jack Bradley will be in charge of production and Lou Rosenblum will handle purchasing and accounting.

Packaging Institute Names Dearing

NEW YORK, N. Y., November 29, 1945—Major Albin Dearing, Eccleston, Md., has been named executive head of the Packaging Institute. Walton Lynch, president of the organization, announced that Dearing, on terminal leave from the parachute troops, would take office immediately.

Major Dearing who was twice wounded in action and cited for gallantry during parachute operations in Europe was director of public relations for Container Corporation of America, Chicago, and had done market research for the Hercules Powder Company, Wilmington, Del., before Pearl Harbor. Besides the Silver Star and Purple Heart with Oak Leaf clusters he was awarded the Bronze Arrowhead and five campaign stars for his part in spearhead actions in Italy, France, Belgium, Germany and Denmark.

Analyte Gives True North Light

The new Analyte North Light Comparator for color matching has been introduced by Analyte Instruments, Inc., 1450 Broadway, New York 18, N. Y. For color matching this instrument is said to be stepped up to higher definitions than ever before obtained in color matching lamps; it has both incandescent light and Analyte north light for contrast, and is said to give extraordinary color separations which reduce color matching errors to a minimum. The Analyte Comparator is said to be the nearest reproduction of north light in existence, according to well-known authorities; the Analyte spectrum is said to be completely continuous, consisting of overlapping bands.

Dr. Chauncey Starr in ascertaining the quality of Analyte in the Russell Sage Laboratory, Department of Electrical Engineering and Physics, Rensselaer Polytechnic Institute, reported: "This light may be considered the equivalent of north sky light. The spectrum is completely continuous, consisting of overlapping bands. As far as I am aware, no other non-incandescent source gives a spectrum that compares with this one for continuity and lack of peaks."

The instrument itself has been scientifically designed for maximum facility of use and operation. The instrument is easily moved, being compactly built. It can be placed anywhere in mill, shop, laboratory, show room—work bench, table or shelf. Built of quality steel—handsomely enameled—operates on 115 Volt A.C. current. Measurements, 20 inches x 20 inches x 15 inches—weight, 120 pounds.

New Steam Trap Has More Capacity

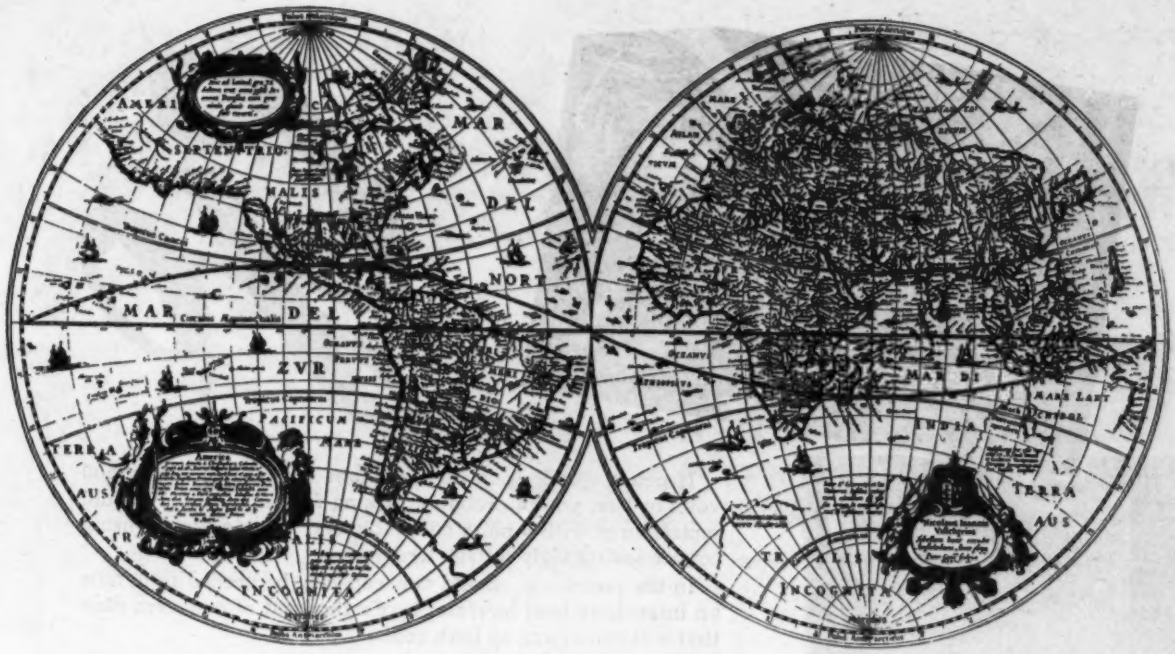
A new series of Strong industrial steam traps of the inverted bucket type has been perfected by Strong, Carlisle & Hammond Company, Cleveland, Ohio. Its features include a new, scientifically designed orifice throat which gives up to 25 per cent greater capacity, avoids turbulence, and minimizes choking caused by flash steam. The screwed-in valve seat is renewable for easy servicing. A new lever construction gives quick, full opening without dribbling. The straight-through inlet-outlet connections have been relocated to place the trap below the inlet pipe at all times. The traps are available in 3 body sizes up to 1¼ inch in both standard and thermal design.

Hamilton Joins D. L. Ward

PHILADELPHIA, Pa., November 29, 1945—Major Robert B. Hamilton who, for the past three years, has been in charge of the purchasing of paper and office equipment, Quartermaster's Division, assigned to the Adjutant General's office in Washington, will take up his duties with the D. L. Ward Co. as director of purchases and mill relations on December 1st. This is just one of the many activities that the company is doing in an effort to secure paper for the printing trade.

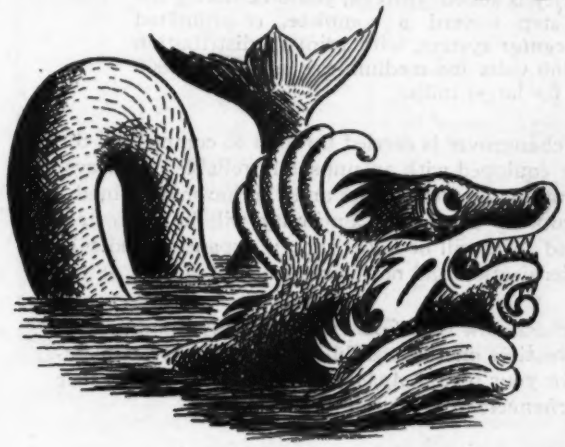
J. A. Noone Transferred by Penn Salt

PHILADELPHIA, Pa., November 29, 1945—Joseph A. Noone, Chief Chemist of the Greenwich Works of the Pennsylvania Salt Manufacturing Company, has been transferred to the Company's executive offices in Philadelphia. In his new work, Mr. Noone will handle labelling and regulatory matters in connection with the Company's products.



Sailors of old faced many real as well as imaginary dangers. But they kept on until they circumnavigated the globe and established trade with its most remote regions.

from sea serpents to paperboard



At first they could bring home only the more durable objects—gold, ivory, silks. But steadily improvements were made in packing methods—until today such fragile things as eggs can be shipped overseas.

One of the most important packaging materials is *paperboard*. It's light but tough and highly resistant to weather and water. Into the making of paperboard go scrap paper, straw, wood and two chemicals vital to many industries—*caustic soda and soda ash*. Caustic and soda ash reduce the mixture to a workable mash from which strong and durable containers are made.

For the manufacture of paperboard—for textiles, soap, glass and many other products—Wyandotte Chemicals Corporation produces tremendous quantities of caustic and soda ash—also thousands of tons of other chemicals highly essential to American industry.

Wyandotte
REG. U. S. PAT. OFF.

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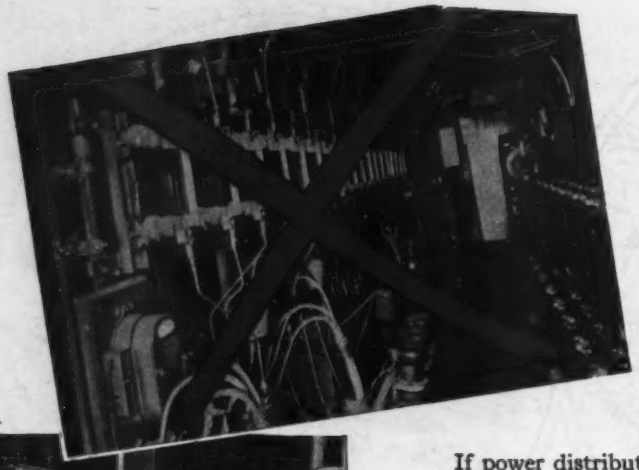
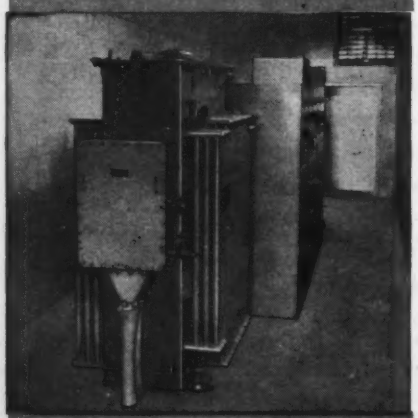
WYANDOTTE CHEMICALS CORPORATION • WYANDOTTE, MICHIGAN

Alkalies • Chlorine • Calcium Carbonate • Calcium Chloride • Dry Ice • Other Basic and Intermediate Organic and Inorganic Chemicals • Specialized Cleaning Materials for Business, Industry and the Home



Go

Here's the modern form of switchboard for paper mills—G-E factory-assembled metal-clad switchgear, with easily removable, oil-less circuit breakers. All live parts are completely enclosed in grounded steel compartments. Additional units are easily added.



A modern load-center unit substation, located in a room directly adjacent to plant production area. Short runs of flexible, interlocked-armor cable carry power to the points of use.

If power distribution in your plant is now handled at 600 volts or less, you're probably looking forward to its eventual replacement with a more adaptable and reliable system using copper-saving high-voltage feeders.

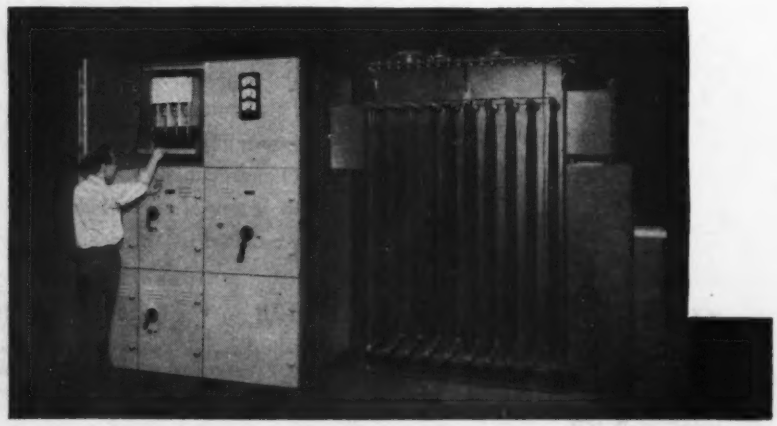
In the meantime, should new capacity be needed to handle an immediate load increase, here's the kind of a system plan that will contribute to both goals.

1. There's no faster way to raise the capacity of your power system to meet the new requirements.

2. You won't be adding to your investment in a low-voltage system—one that becomes more risky *throughout* whenever new supply-capacity is added. Instead, you'll be taking the first step toward a complete, co-ordinated *load-center* system, with primary distribution at 4160 volts for medium-size mills or 13,800 volts for larger mills.

When the changeover is carried through to completion, the plant will be equipped with an unusually reliable power system, free from voltage deficiencies and the hazards of inadequate interrupting capacity. Continuity will be protected. Final installed *costs* will be *lower* than if expansion and subsequent modernization had not been planned together at the start.

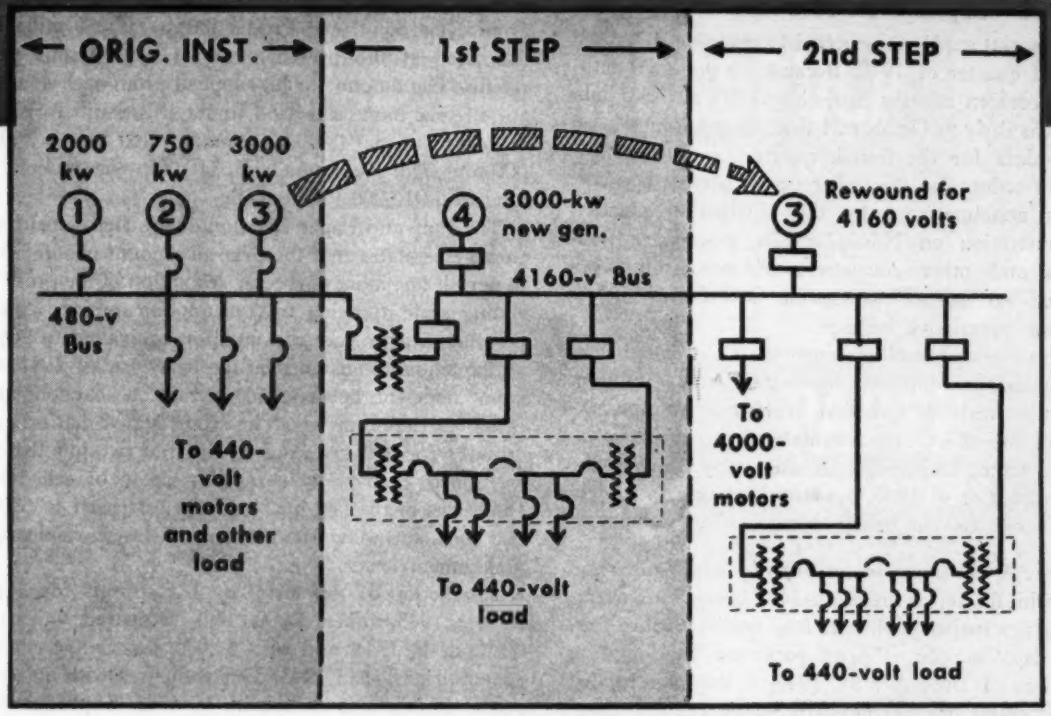
Why not check now with G-E engineers fully familiar with paper-mill practices on the possibilities of power-system improvement for your plant? ***Apparatus Dept., General Electric Company, Schenectady 5, N. Y.***



Load-center unit substations can be located almost anywhere in the plant. Transformers are steel enclosed and filled with G-E's noninflammable cooling and insulating liquid—Pyranol. No Pyranol transformer has ever burned or contributed to a fire. Drawout air circuit breakers are fully co-ordinated with the transformer and are convenient to inspect.

Modern AS YOU GROW

EXPANSION OF POWER SYSTEMS THE LOAD-CENTER WAY CUTS THE COSTS OF FULL MODERNIZATION LATER



ORIGINALLY, this plant was equipped with low-voltage turbines (1, 2, 3) serving all load through a 480-volt bus. Plant expansion led to a need for increased generating capacity to meet power requirements at points remote from the switchboard. Long 480-volt feeders would have required a heavy investment in cable.

FIRST STEP in the "load-center" expansion plan was to install a new 3000-kw generator (4) serving new loads via 4160-volt feeders to unit substations at the load-centers. A transformer tie to the existing 480-volt system gives extra flexibility in handling loads. A "secondary selective" unit-substation link gives a high measure of reliability.

SECOND STEP is to rewind the low-voltage turbine (3) for 4160-volt operation, transferring more of the plant load to secondary selective unit substations served from the high-voltage bus. Eventually, the low-voltage bus will be completely supplanted.

Buy all the BONDS you can—*and keep all you buy*

GENERAL ELECTRIC

LOAD-CENTER POWER DISTRIBUTION SYSTEMS

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
W. L. Cook, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Empire State Section. Technical Association of the Pulp and Paper Industry—Second Thursday of each month at the Woodruff Hotel, Watertown, N. Y.

Chicago Professional Paper Group. Third Monday of each month except July and August at Chicago Bar Association, Chicago, Ill.

NEWSPRINT IN SHORT SUPPLY

Newsprint supply is expected to continue short into the first quarter of 1946. Because of the acute situation foreseen months ago, the WPB advised publishers as early as October 31 that, due to accumulated over-orders for the fourth quarter, a reduction of 15% in orders for December was expected to occur. In an announcement by the Civilian Production Administration on November 26, newspaper publishers and other consumers of newsprint were directed to reduce newsprint inventories below previous permissive ceilings.

In issuing that announcement the CPA stated that, this action was initiated by the CPA to fulfill an agreement with the Canadian Newsprint Administration, to the effect that accumulated newsprint over-orders from United States customers during the fourth quarter of 1945, amounting to approximately 30,000 tons, would be eliminated as of January 1, 1946.

Through an amendment to the newspaper and newsprint limitation order (L-240) issued on November 26, newspaper publishers may not have more than a 25 days' supply of print paper on hand and in transit as of December 31, 1945, if they are located in the Central and Northeastern States, and a 45 days' supply if located in the Western and Southern States. Previous permissive inventories were 30 days and 50 days respectively.

This directive includes other consumers of newsprint and they are required to bring their inventories on December 31, 1945, down to 28% of the tonnage of newsprint lawfully used in the fourth quarter of 1945 from a previous permissive amount of 33⅓% of fourth quarter use. CPA officials pointed out, however, that in computing the number of days' supply on hand and in transit at the end of the year, publishers are permitted to exclude less than quota savings.

Accordingly, the CPA explained, if a publisher uses less paper than he is permitted to use in the fourth 1945 quarter, such savings need not be included in this calculation of newsprint inventory on hand and in transit at the end of 1945.

Newsprint controls under Order L-240 are expected to remain in effect until the end of 1945, which order with other WPB orders, is under the jurisdiction of the Civilian Production Administration which succeeded the WPB on November 3, 1945. Providing government controls are entirely removed on January 1, 1946, the CPA states that it will be necessary for publishers and other newsprint consumers to continue to restrict their use on a voluntary basis if equitable distribution of newsprint is to be maintained. The best estimates at this date indicate that 1,910,000 tons of newsprint will be made available to United States newspaper publishers and other consumers during the first half of 1946. This estimate is based upon an increase of 10,000 tons per month in receipts from Canada and an increase of 5,000 tons per month from Newfoundland. Production by U. S. mills is estimated at the present level of 60,000 tons per month. The amount to be supplied from each source for the six months' period under this estimate is as follows: Canada, 1,440,000 tons; United States, 360,000 tons, and Newfoundland, 110,000 tons, making a total of 1,910,000 tons.

The Pulp and Paper Division of the Department of Commerce states that the over-all amount is sufficient to permit one more degree of relaxation in the present sliding scale applying to consumption quotas, which permits an aggregate consumption equivalent to 90% of the amount consumed in the base year of 1941. It is not sufficient, however, to warrant an abandonment of all restriction on use. The report stated that orders on mills for deliveries during the first two months of the fourth quarter have run far ahead of schedule. Deliveries in the last quarter were restricted to 690,000 tons, including the amounts to be set aside for government order.

Production of newsprint by U. S. mills for September, 1945, totaled 57,000 tons, compared with 61,000 tons in 1944, and with 64,000 tons in the corresponding period in 1943. This compares with an output of 57,000 tons in August, 1945. U. S. production for the nine months of 1945 totaled 539,000 tons, compared with 535,000 tons in 1944, an increase of 0.6%. Exports in this period totaled 1,916,000 tons, against 1,870,000 tons in 1944, an increase of 2.5%; exports totaled 37,000 tons, against 24,000 tons in 1944, an increase of 52.2%, while re-exports were 2,000 tons, against 7,000 tons in 1944. Total inventories for the nine months of 1945 were 319,000 tons, compared with 404,000 tons in 1944, a decrease of 21.2%; publishers' inventories were 314,000 tons, against 397,000 tons in 1944, a decrease of 20.9%, while mill inventories amounted to 5,000 tons, against 7,000 tons in 1944, a decrease of 33.9%. The decrease in newsprint stocks was accordingly 16.6% and the apparent total consumption of 2,510,000 tons in the nine months of 1945, compared with 2,366,000 in 1944 was up 6.1%.

Pulpwood Shortage Hampers Norway

WASHINGTON, D. C., November 27, 1945—Norway's production of pulp and paper will be limited until July, 1946, by the fact that raw material inventories of pulpwood are at an all-time low, according to a report from the American embassy at Oslo, just made public here. Stocks of pulp and paper on hand are also very low, the report continued. The unfavorable position of the industry in this respect is expected to continue until next year, when the next season's timber cuttings will become available.

Inventories at the beginning of August showed 7,700 short tons, wet, of mechanical pulp, 3,300 tons of chemical pulp, and 2,200 tons of paper.

Before the war Norway's wood pulp industry ranked first in both tonnage and value, among that country's exports. There were about 100 pulp and paper mills consuming approximately 1,093,765 cords of wood annually and exporting almost their entire production.

The United Kingdom purchased about half of Norway's total exports of these products; the United States ranked second as a buyer, with purchases of almost 13 per cent, and France third, with imports of slightly more than 7 per cent of the Norwegian foreign shipments. Most of Norway's mechanical pulp mills are along the coast, accessible to ocean-going vessels specially built for the trade, hence the country is able to export wet pulp cheaply, thus eliminating the cost of drying the pulp.

German demands on Norway's wood industries during the occupation were about equal to the prewar exports, but due to lack of labor and to sabotage in the timber-cutting stage, the Germans got only about 20 per cent of the wood products they demanded. The German occupation failed to affect the postwar production capacity of the Norwegian paper and pulp industries, equipment having been left intact; however, immediate production will be affected by the low inventories mentioned, and the short coal allocations.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1945		Corresponding Weeks—1944	
Oct. 20	96.5	Oct. 21	90.7
Oct. 27	95.8	Oct. 28	91.3
Nov. 3	97.5	Nov. 4	93.0
Nov. 10	97.0	Nov. 11	91.3
Nov. 17	96.4	Nov. 18	90.3
Nov. 24	91.4	Nov. 25	87.2

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	88.7	88.5	88.1	87.6	88.7	89.8	80.3	90.6	88.2	92.5	90.6	92.4	88.1
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9			

COMPARATIVE YEARLY SUMMARIES

	1938	1939	1940	1941	1942	1943	1944	1945
Year to date	71.3	82.6	86.0	97.0	91.5	87.6	88.5	89.5
Year Average	71.5	83.4	85.6	97.4	90.4	87.8	88.1	

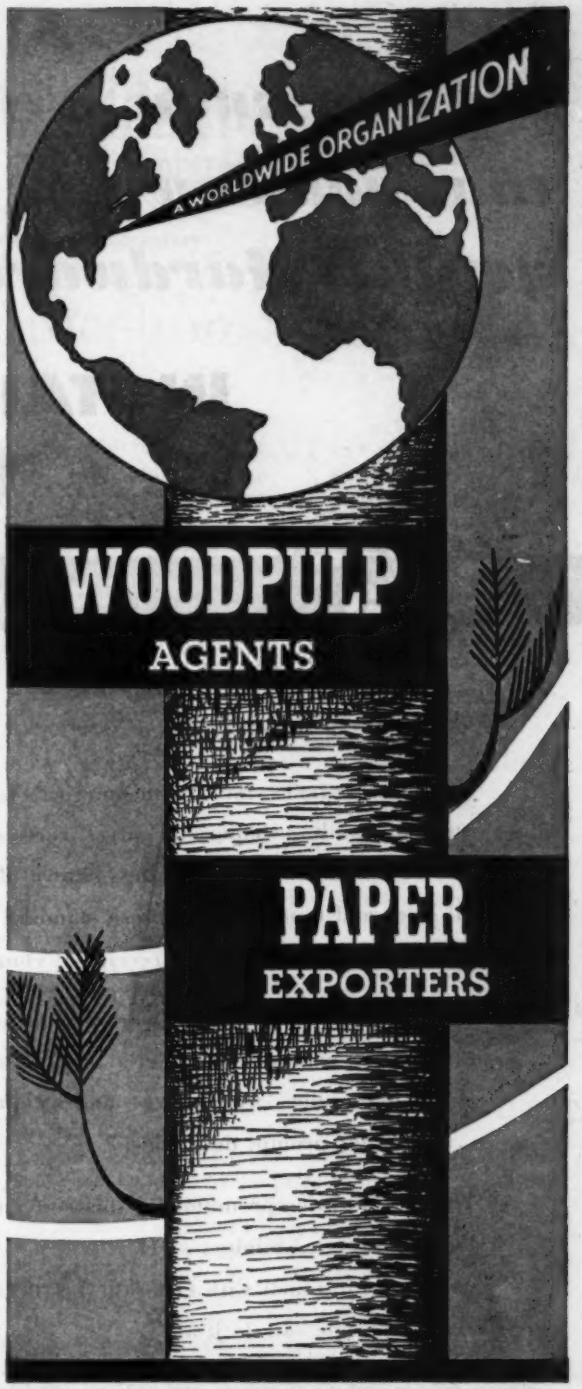
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1945		Corresponding Weeks—1944	
Oct. 20	96	Oct. 21	94
Oct. 27	98	Oct. 28	95
Nov. 3	97	Nov. 4	96
Nov. 10	97	Nov. 11	96
Nov. 17	95	Nov. 18	96
Nov. 24	91	Nov. 25	91

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	90	96	95	96	96	96	85	96	92	95	95	85	93
1945	91	95	97	97	96	96	86	90	91	97			

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.



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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Report on Fiber Identification Symposium

By F. A. Burningham[1]

The following is a brief summary of the work done at the Microscopy Symposium held at the Institute of Paper Chemistry, Appleton, Wisconsin, July 9 to July 21, inclusive, 1945, together with certain comments by the Chairman of the Microscopy Committee of the Technical Association of the Pulp and Paper Industry who attended as an observer.

The chairman was present at all meetings from July 16 to July 21, inclusive, but it was impossible for him to be present during the first week of the Symposium. However, he familiarized himself with all that took place during the first week.

Program

The following is a copy of the schedule for the Symposium, as presented to the sixteen representatives from member mills present to take the course.

MONDAY, JULY 9

8-10 a. m. Opening of Symposium by Dr. Harry Lewis of the Institute—
Introductory remarks by Mr. John H. Graff.

10-12 a.m. Laboratory work: Slides 1 to 10 for fiber identification.

Note 1. Slides 1 to 33 and 59 to 86 are single slides with the name of the pulp fiber marked on the slide. Slides 34 to 58 and 87 to 102 are mixtures of two different pulp fibers appearing on the preceding slides, with the name of the mixture marked on the slides.

Slides 103 to 123 for qualitative analysis are mixtures of two different pulp fibers on each slide, marked with numbers only.

Slides 141 to 150 for quantitative analysis have the names of the pulp mixtures on the slides, but do not have the percentages indicated.

Slides 151 to 160 for qualitative and quantitative analysis are mixtures of two to five different pulp fibers on each slide, and are marked with numbers only.

1:30-2:30 p. m. Lecture: Light and Lenses.

2:30-5:00 p. m. Laboratory work: Slides 11 to 20 for fiber identification.

TUESDAY, JULY 10.

8-9 a. m. Lecture: Microscope objectives.

9-12 a. m. Laboratory work: Slides 21 to 30 for fiber identification.

1:30-5:30 p. m. Lectures: Microscope eye pieces, condensers, and microscope illumination.

WEDNESDAY, JULY 11.

8-9 a. m. Lecture: Microscope accessories.

9-12 a. m. Laboratory work: Slides 31 to 40 for fiber identification.

1:30-2:30 p. m. Lecture: Fiber morphology. Dr. Irving Isenberg.

2:30-5:00 p. m. Laboratory work: Slides 41 to 50 for fiber identification.

THURSDAY, JULY 12.

8-9 a. m. Lecture: Micrometry.

9-12 a. m. Laboratory work: Slides 51 to 60 for fiber identification.

1:30-5 p. m. Lecture: Fiber dimensions, area measurements, and particle size-determinations.

FRIDAY, JULY 13.

8-9 a. m. Lecture: Fiber analysis, sampling and disintegration.

9-12 a. m. Laboratory work: Slides 61 to 70 for fiber identification.

1:30-2:30 p. m. Lecture: Stains and staining.

2:30-5 p. m. Laboratory work: Slides 71 to 80 for fiber identification.

SATURDAY, JULY 14.

8-9 a. m. Lecture: Dyes for fiber identification.

9-12 a. m. Laboratory work: Slides 81 to 90 for fiber identification.

A trip to a near-by mill was arranged for Saturday and the morning session was continued in the afternoon for those who made the morning trip.

MONDAY, JULY 16.

8-9 a. m. Lecture: Qualitative and quantitative analysis.

9-12 a. m. Laboratory work: Slides 91 to 102 for fiber identification.

1:30-3:30 p. m. Laboratory work: Slide making.

3:30-5 p. m. Review and question period.

TUESDAY, JULY 17.

8-12 a. m. Laboratory work: Speck analysis.

1:30-5 p. m. Lectures: Stains for special purposes, and speck counting.

WEDNESDAY, JULY 18.

8-12 a. m. Laboratory work: Slides 103 to 123 for qualitative analysis.

1:30-5 p. m. Laboratory work: Slides 124 to 140 for Bright Stain studies and experimental quantitative analysis.

THURSDAY, JULY 19.

8-12 a. m. Laboratory work: Slides 141 to 150 for quantitative analysis.

1:30-5 p. m. Lectures: Microtome sectioning, resin identification, and fluorescence reactions.

FRIDAY, JULY 20.

8 a. m.-5 p. m. Laboratory work: Slides 151 to 160 for qualitative and quantitative analysis.

SATURDAY, JULY 21.

8-12 a. m. Discussion of results, question and answer period.

Note 2. Owing to the short period of the course

[1]Member TAPPI; Chairman of the TAPPI Microscopy Committee; Research Chemist and Microscopist, Brown Co., Berlin, N. H.

and the varied individual interests of the students and their companies, there were several meetings in the hotel in the evening for special lectures and question periods.

Comments

The students attending this course numbered sixteen individuals, thirteen men and three women, representing mills in the states of Massachusetts, New Jersey, New York, Pennsylvania, Virginia, Michigan, Ohio, Illinois, Minnesota, and Wisconsin; the author represented New Hampshire.

The students varied in fiber analysis experience from none at all to about twenty years. It was found that in a relatively short time, using the color atlas prepared by Mr. Graff, all of the students were able to qualitatively identify most of the numerous types of pulps given to them. The observer feels that given a little more time all of them could qualitatively identify any fiber normally present in commercial pulps and papers by the use of the "C" stain and Mr. Graff's charts.

The quantitative analysis of mixtures of fibers presents another problem, that of the positive identification of each of the fibers in a mixture and this requires a longer time than was possible in a short summer course. The quantitative analysis of such mixtures as groundwood and bleached softwood sulphite, or rag and bleached chemical wood pulp offers no difficulties even with such a short preparation as is possible in two weeks, but the more difficult analyses require much more training for acceptable results.

The methods of sample disintegration and slide preparation practiced at the Institute undoubtedly represent the most advanced technique available up to the present time. The use of first-class slides is of prime importance if one is to obtain satisfactory quantitative results.

The observer spent about half of his time examining representative slides stained with the "C" stain, with which he is very familiar through personal use over a period of about twenty years. This stain, in the observer's opinion, gives the best all-around differentiation yet developed for most of the common fibers encountered in ordinary fiber analysis, with the exception of mixtures containing certain unbleached softwood sulphites and unbleached softwood krafts, and bleached hardwood soda and bleached hardwood kraft. It does not differentiate peroxide-bleached groundwood from unbleached groundwood, as pointed out by Mr. Graff in his article in the *Paper Trade Journal*, 118, No. 16:29 (Apr. 20, 1944). The so-called Wilson stain (*Paper Industry and Paper World*, May, 1945, p. 215-216) gives results somewhat similar to those given by the "C" stain, but the colors are fainter and differentiations less marked in certain cases. For special purposes, the old familiar stains of long standing in the industry may give entirely satisfactory results, but they must be used with caution, and better not at all for general analysis. The use of the "C" stain requires adequate training to obtain the best results.

The identification of certain fiber mixtures is more readily accomplished by some modification of the Lofton-Merritt stain than by the "C" stain, and some mixtures are almost impossible to differentiate by any known staining procedure.

The weight factors presented by Mr. Graff in the *Paper Trade Journal*, October 12, 1944, 119, No. 15: 41-42 are the most up-to-date available and are probably generally applicable although for such pulps as groundwood, individual analysts may differ considerably. It is obvious that the method of estimation of whole fibers from broken fragments should be the same for analysis as for weight factor determination to give precise results. This is almost impossible of accomplishment for such pulps as groundwood. The counting of fragmentary or medullary ray material, especially in hardwood pulps, leads the analyst into the same type of difficulty. It might be very helpful if a full explanation of what material should be counted and what ignored was incorporated into TAPPI Standard T 401m-42. This could only come from the source of the weight factors.

The consensus of opinion of the summer course group was that a study of fiber morphology by all fiber analysts should be strongly emphasized.

The problem of speck analysis was taken up rather briefly in the course, and representative samples of many kinds of specks were examined microscopically. The representative specks are prepared from materials available in quantity at the Institute.

The projection method for fiber measurements as used at the Institute is very satisfactory although the projection device takes up a considerable amount of space. A filar micrometer is equally accurate and takes up little space.

Some method of weighting the fiber measurements to emphasize the importance of the longer fibers seems desirable, and several have been proposed. That of J. d'A. Clark, *Paper Trade Journal*, 115, No. 26: 328-334 appears to be the most accurate and to give good correlation with the tensile strength, bursting strength, and tearing resistance of paper.

The so-called "block-diagram" method of Bergman and Backman, *Papier-Fabr.* 27, No. 29:449-56 (1929) gives a weighted average fiber length identical with that used by the observer for the past seven or eight years, and which appears to differ only slightly from Dr. Clark's $\dot{y}_w$ value. The observer has called this average the "median length," although admittedly it is rather a misnomer.

The whole group of summer course students felt that they had received a great deal of benefit from their attendance at the Microscopy Symposium, both from the standpoint of fiber identification and from greater familiarity with the microscope and its accessories. An introduction to special techniques, such as the use of fluorescent light, also opened up vistas of new fields of accomplishment.

Machinists' and Draftsmen's Handbook

D. Van Nostrand Company has just issued The Machinists' and Draftsmen's Handbook by Albert M. Wagener of the Henry Ford Trade School and Harlan R. Arthur, supervisor of instruction for the Naval Training School at Dearborn, Mich. (662 pp. 8x5½).

The authors have attempted to present in one small volume a reference work for machinists and draftsmen that will contain all of the basic information required in a great majority of their average daily assignments. Many problem solutions are given in great detail on the assumption that many have forgotten the principles involved.

Among the subjects covered are measurements and calculations, drills, threads, gears, milling tables, tapers, cutting tools, metals, dies and presses, mechanics and strength of materials.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $4.50 per copy.

The "Fading" of Groundwood by Light*

V. Inhibition of Fading Through the U se of Ultraviolet Absorbing Compounds

By Philip A. Nolan[1]

Abstract

The Eastman ultraviolet sensitizing solution is the only compound discussed which reduces appreciably the fading of groundwood. The use of this compound is not commercially feasible because both the initial cost and the cost of application of the compound are very much too high. The results, however, support the original premise on which this phase of the undertaking was based—namely, that fading might be cut down or eliminated through the inclusion in the sheet of a compound which would strongly absorb the wavelengths of ultraviolet light which are responsible for fading.

Fluorescent purple is not effective in reducing the fading of groundwood. This statement holds both for beater and surface application of the dye. Fluorescent purple does not brighten a groundwood sheet as it does sheets of bleached chemical pulps.

It appears from the work carried out that one of the most infrequent characteristics of substances with a high ultraviolet absorption coefficient is fastness to ultraviolet radiation.

It has been shown in the second paper of this series that ultraviolet light of wavelength from 270 to 400 mmu is responsible for the fading of groundwood pulp when it is exposed to light. It may be assumed that an ultraviolet filter could be incorporated in the groundwood sheet which would strongly absorb the ultraviolet light of these wavelengths. This absorption would prevent the radiation from reaching the groundwood fibers and eliminate fading resulting from exposure to light from the sun or other normal illuminants. This situation may be simulated by placing a layer of M.R.T. cellophane over one-half of a groundwood sheet; the protected half shows no drop in brightness when the sheet is exposed to the rays of a General Electric sun lamp for such a period as will cause a drop of 15% in the uncovered area.

This plan of attack on the problem of the reduction of fading of groundwood would avoid the approach to the solution of the fundamental problem of the chemical reaction or reactions within the fiber which are responsible for the fading.

The objective of the work reported here was to find a compound of high ultraviolet absorption which would be absorbed by the groundwood fibers or which could be incorporated in some surface coating procedure. The characteristics of the ideal compound for this purpose are outlined below:

The ultraviolet-absorbing compound should absorb no visible light but should show rapidly increasing absorption of light for wavelengths less than 400 mmu, with a maximum of absorption at 310 mmu. This characteristic absorption would meet the requirement that the ultraviolet-absorbing compound cause no dulling of the treated sheet as compared with the normal groundwood sheet. In addition, this ultraviolet absorption characteristic would provide maximum efficiency of absorption of the ultraviolet light which has been shown to be most effective in the production of the fading.

The ultraviolet-absorbing compound should be con-

* Presented by title at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 19-22, 1945. This work was carried out for the Groundwood Paper Manufacturers Association and is published with their permission.

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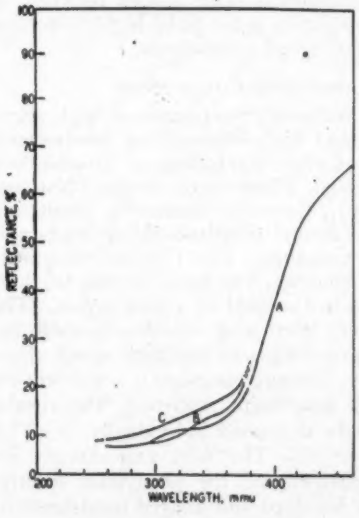


FIG. 1

Ultraviolet reflectance curves for groundwood A. Unaged. B. Exposed to iron arc for 1 hour. C. Exposed to mercury arc for 10 hours.

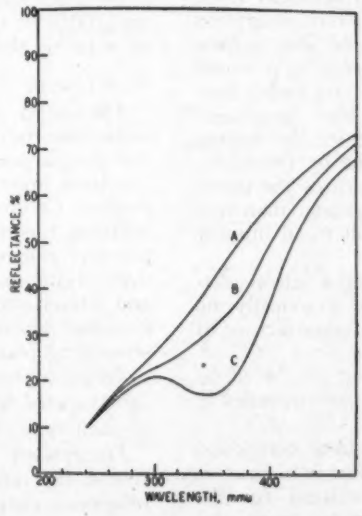


FIG. 2

Ultraviolet reflectance curves for bleached sulphite pulp and bleached sulphite pulp dyed with Fluorescent purple. A. Bleached sulphite pulp. B. 1 lb. dye/1000 lb. pulp. C. 5 lb. dye/1000 lb. pulp.

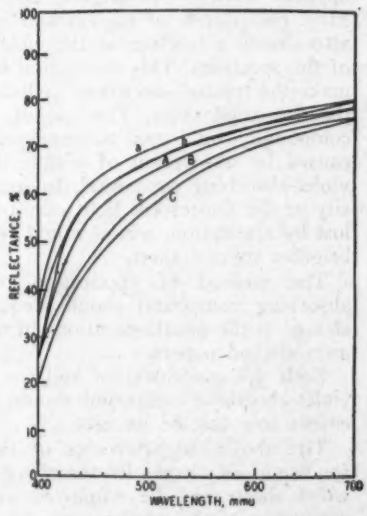


FIG. 3

Curves for unfaded and faded groundwood sheets compared with groundwood sheets dipped in an alcoholic solution of Fluorescent Purple.

Fading in hours	0	1	10
Untreated	a	b	c
Treated	A	B	C

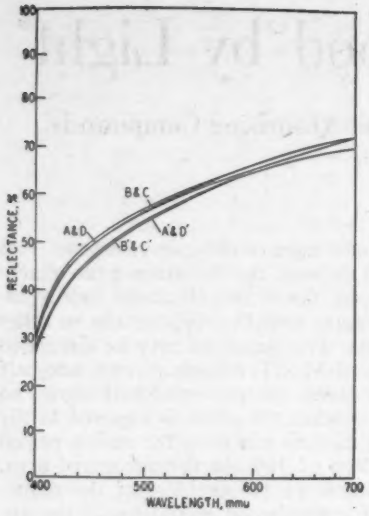


FIG. 4a

Curves for faded series of groundwood beater dyed with Fluorescent purple.

Fading in hours	0	1
Undyed	A	A′
1 lb./1000 lb.	B	B′
5 lb./1000 lb.	C	C′
10 lb./1000 lb.	D	D′

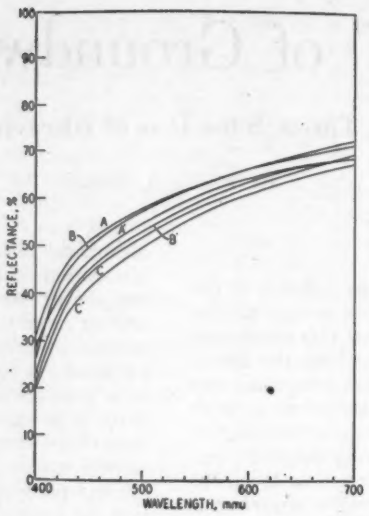


FIG. 4b

Curves for faded series of samples of groundwood beater dyed with Fluorescent purple.

Fading in hours	0	1
Undyed	A	A′
100 lb./1000 lb.	B	B′
500 lb./1000 lb.	C	C′

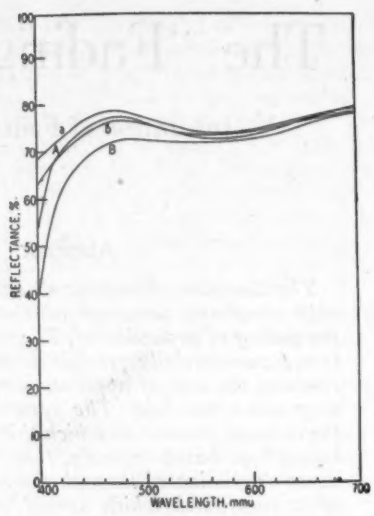


FIG. 5

Curves for faded and unfaded rag sheet compared with faded and unfaded rag sheet dipped in solution of Fluorescent purple dye.

	Unfaded	Faded 1 hour
Untreated	a	b
Treated	A	B

centrated at the surface of the groundwood sheet in order to obtain maximum absorption of light for a minimum amount of compound. This requirement is set forth as a result of the observation that, in a normal groundwood sheet, the fading occurs close to the illuminated surface of the sheet.

The ultraviolet-absorbing compound should be fast to light. This characteristic would eliminate the possibility of a change in color of the treated groundwood sheet caused by the fading of the ultraviolet-absorbing compound itself.

The ultraviolet-absorbing compound should preferably be an efficient source of fluorescent light. The color of the fluorescent light emitted by the compound should be blue or bluish white. This blue fluorescent light would cause the treated groundwood sheet to appear "whiter" and brighter than it normally does. Most compounds of high near-ultraviolet absorption also absorb a fraction of the violet and blue regions of the spectrum. This absorption of blue light would make the treated sheet both yellower and duller than the untreated sheet. The use of a blue fluorescent compound would tend to compensate for the dulling caused by absorption of visible light by the ultraviolet-absorbing compound. In some cases the intensity of the fluorescent light may be greater than that lost by absorption, which would result in an initially brighter treated sheet.

The method of application of the ultraviolet-absorbing compound should require practically no change in the usual operations in the manufacture of groundwood papers.

Both the concentration and the cost of the ultraviolet-absorbing compound should be low in order to ensure low cost of its use.

The above characteristics of the ideal compound for use as an ultraviolet-absorbing filter in a groundwood sheet may be employed as a basis for the evaluation of the performance of a given compound for this purpose.

The Ultraviolet Reflection of Normal Groundwood

In most cases, the wavelength variation of the efficiency of a photochemical process, such as the fading of groundwood, is proportional to the amount of light absorbed at the different wavelengths. In order to test this point in a qualitative way, the spectral reflectance curves for groundwood sheets were determined for wavelengths from 240 to 400 mmu.

The ultraviolet reflectance of the groundwood was measured by means of an ultraviolet spectrophotometer of new design *(1)*. The reflectance curves so obtained decrease rapidly from 35% at 400 mmu to 10% at 310 mmu (Fig. 1). These curves indicate a maximum absorption of 90% of the light in the same wavelength range that is effective in producing the fading in groundwood. The fact that the fading of a groundwood sheet is localized at its surface indicates that a thin surface film of the added ultraviolet-absorbing compound must absorb between 90 and 100% of the light in order to be highly effective in reducing the fading of groundwood.

The Use of Fluorescent Compounds

The use of the following compounds of high ultraviolet absorption and high efficiency of fluorescence for the purpose of reducing fading of groundwood has been investigated. Fluorescent purple (National Aniline Company), Eastman ultraviolet sensitizing solution, Eastman diethyl dihydrocollidinedicarboxylate, and calcium tungstate. The Fluorescent purple dye is being used commercially for obtaining brighter and whiter sheets in the field of white papers. The Eastman ultraviolet sensitizing solution is used for sensitizing photographic plates for high speed ultraviolet photography. Calcium tungstate is a well-known substance of high fluorescent efficiency. The results of each type will be discussed individually.

Fluorescent Purple. — The first experiments involved the measurement of the ultraviolet spectral reflectance curves for dyed and undyed handsheets of bleached sulphite pulp (Fig. 2) for the purpose of determining the ultraviolet wavelength range in which the dye effectively absorbs light. The difference between curves A and C is a measure of the amount of light absorbed by the dye. It is seen that the

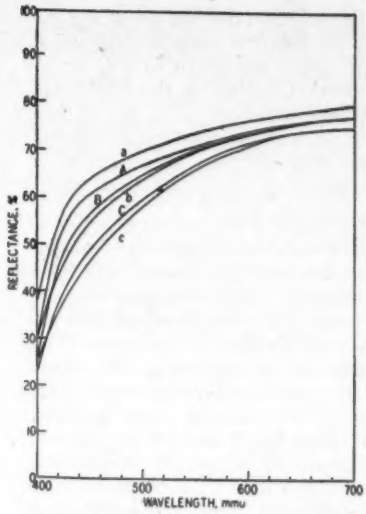


FIG. 6

Curves for groundwood sheets dipped in Eastman ultraviolet sensitizer solution.

Fading in hours	0	3	12
Untreated	a	b	c
Treated	A	B	C

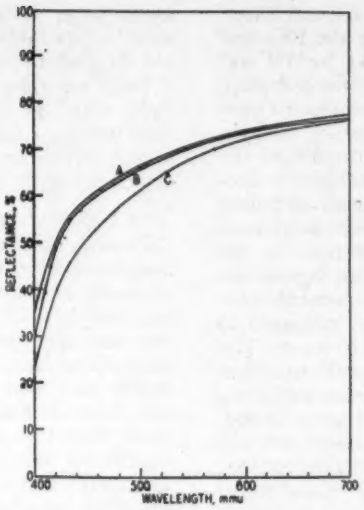


FIG. 7

Curves for groundwood sheets sprayed with Eastman ultraviolet sensitiser.

A. No fading.
B. 1 hr. fading.
C. 17 hr. fading.

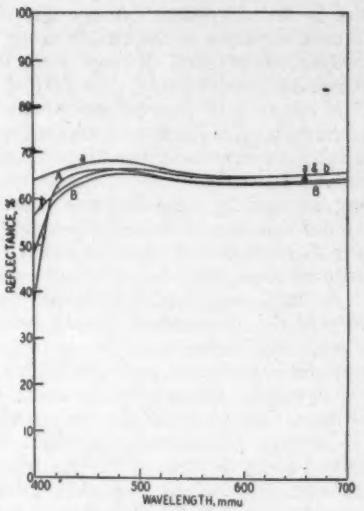


FIG. 8

Curves for faded and unfaded rag sheet compared with faded and unfaded rag sheet sprayed with solution of Eastman ultraviolet sensitizer.

	Unfaded	Faded 16 hr.
Untreated	a	b
Treated	A	B

difference is small at 310 mmu, the wavelength most effective in fading groundwood.

Similar tests were run on dyed and undyed handsheets of 100% groundwood pulp. These curves indicated a maximum absorption for the Fluorescent purple at 350 mmu. Furthermore, the absorption coefficient of the dye decreases rapidly from 350 to 300 mmu, which checks with the first experiment in indicating unsuitability of Fluorescent purple for reducing the fading of groundwood.

In spite of this a number of further experiments were run, which are described briefly in order to complete the record.

One set of groundwood handsheets was dipped in an alcohol solution of Fluorescent purple and a second set was made from beater dyed stock. There was no appreciable difference in the rates of fading of the natural and the dipped sheets. The absorption of visible light by the Fluorescent purple was responsible for a 3.5 point decrease in reflectance of the dipped-dyed sheet at 450 mmu (Fig. 3). The dipped-dyed sheet was visually duller than the natural sheet, which observation is consistent with the instrumentally determined spectral reflectance curves.

Beater-dyed samples were made using the following weights of dye: 5, 10, 100, and 500 pounds of Fluorescent purple per 1000 pounds of groundwood stock. These weights of dyeing are economically impracticable, but it was desirable to study what difference in initial brightness and rate of fading could be measured on the dyed sheets. The percentage retention of the dye was measured for the 10-pound dyeing and found to be 60% (Figs. 4a and 4b).

There was no difference in the rates of fading of

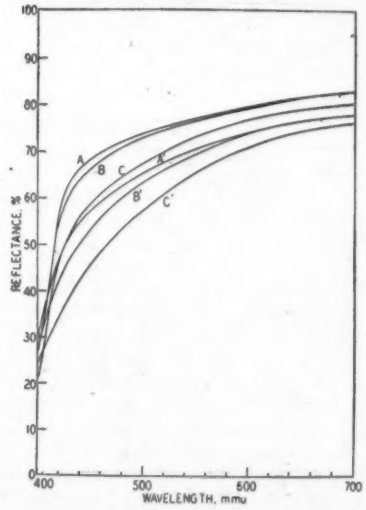


FIG. 9

Curves for groundwood sheets sprayed with solution of diethyl dihydrocollidinedicarboxylate.

Fading in hours	0	8	24
Heavy coating	A	B	C
Light coating	A'	B'	C'

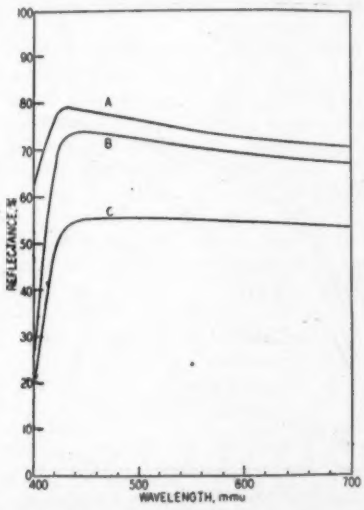


FIG. 10

Curves showing fading of diethyl dihydrocollidinedicarboxylate (deposited on glass).

A. No fading.
B. 5 hr. fading.
C. 24 hr. fading.

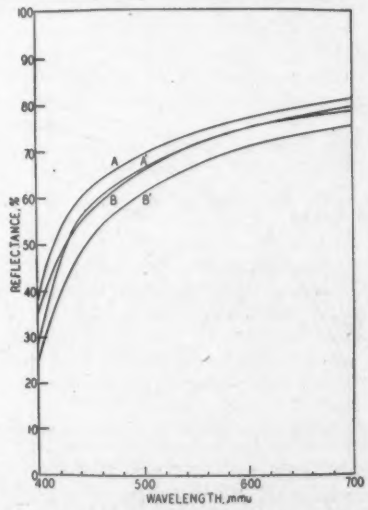


FIG. 11

Curves for groundwood sheets treated with calcium tungstate.

	Unfaded	Faded 1 hour
Sprayed	A	B
Precipitated	A'	B'

the 5- and 10-pound dyeings and the natural sheet. The reflectances in the visible range for the 100- and 500-pound unfaded dyeings were lower by 3.0 and 6.8 points, respectively, than that of the natural pulp. The intensity of fluorescence of the Fluorescent purple dye was too low to compensate for the drop in brightness caused by the higher concentration of the dye. All the dyed sheets, except the 500-pound dyeing, showed the same decrease in brightness on fading as did the natural sheet. The decrease in brightness for the 500-pound sheet was less than that for the natural sheet, but the difference was not significant.

A 100% rag sheet was dipped in an alcohol solution of the Fluorescent purple dye and subjected to the normal fading test for a period of 16 hours. The spectral reflectance curves of Fig. 5 indicated that the dye fades appreciably; however, the rate of fading is lower than observed for the untreated groundwood.

Eastman Ultraviolet Sensitizer. — The results obtained from the use of the Eastman ultraviolet sensitizing solution as the ultraviolet-absorbing compound are as follows: The rate of fading of a groundwood sheet dipped for 30 seconds in the active solution is less than that of the natural sheet (Fig. 6). The natural sheet required an exposure of 6 hours to decrease the reflectance by 12.1 points, whereas the dipped sample required a 12-hour exposure for the same decrease. In spite of the originally lower measured reflectance of the dipped sheet, it appeared visually brighter and whiter than the natural sheet when viewed in daylight. Handsheets were sprayed with the Eastman ultraviolet sensitizing solution by means of a small atomizer. The results of the fading tests indicated that the sprayed sheet required an exposure of 17 hours to cause the same decrease in reflectance of 8.7 points that the natural sheet showed in an exposure of 3.5 hours. It was observed in this case that the sprayed sheet appeared much brighter than the natural sheet when they were viewed either in artificial light or daylight.

In order to concentrate the solution of the Eastman ultraviolet sensitizing solution at the surface of the sheet, groundwood sheets were sprayed with the solution by means of an atomizer. The conditions were chosen so that the solution did not penetrate the sheet appreciably. The spectral reflectance curves for the faded sprayed sheets are given in Fig. 7.

Tests were then made on fading of the 100% rag sheet with the ultraviolet solution (Fig. 8). These data indicated that there was no appreciable fading of the ultraviolet sensitized coating which could be associated with the fading of the compound itself.

The Use of Other Compounds

Diethyl dihydrocollidinedicarboxylate. — Another compound with high ultraviolet absorption and high efficiency of fluorescence is diethyl dihydrocollidinedicarboxylate. This compound was dissolved in benzene and sprayed on a groundwood handsheet. The sprayed, unfaded sheet had a brightness 6.5 points higher than that of the untreated sheet. However, the visual brightness of the sprayed sheet differed more from that of the untreated sheet than was indicated by this measured difference in brightness. This latter fact is associated with the extremely high efficiency of fluorescence of the compound and with the formation of a crystalline coating on the surface of the groundwood sheet. Fading tests indicated that the reflectance of the sprayed sheet decreased more rapidly than that of the untreated sheet (Fig. 9). In order to account for this difference, in spite of the high ultraviolet absorption of the compound, a layer of the compound was sprayed on a glass surface. This sprayed surface was then subjected to the normal fading test; the brightness decreased by 23 points during an exposure of 24 hours. This observation eliminates the possibility of using this compound (Fig. 10).

Calcium Tungstate.—Calcium tungstate fluoresces efficiently in the extreme violet and possesses a high ultraviolet absorption coefficient. A solution of this compound was sprayed on the groundwood sheet; no difference between the rate of fading of this sheet and the treated sheet was observed (Fig. 11).

Naphthylaminesulphonic Acids. — A cellophane which is used as a preservative wrapping for foods absorbs practically all of the ultraviolet radiation below 400 mmu. A natural groundwood sheet was

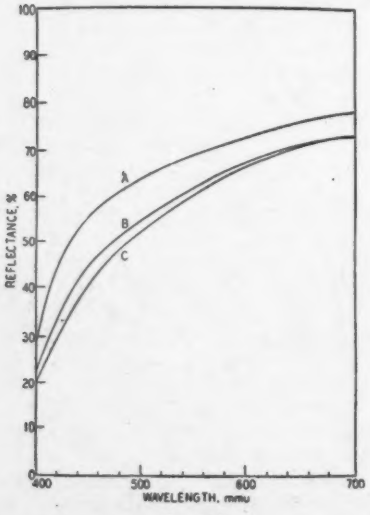


Fig. 12

Curves for groundwood sheets dipped in aqueous solution of Amino G salt.

A. No fading.
B. 3 hr. fading.
C. 17 hr. fading.

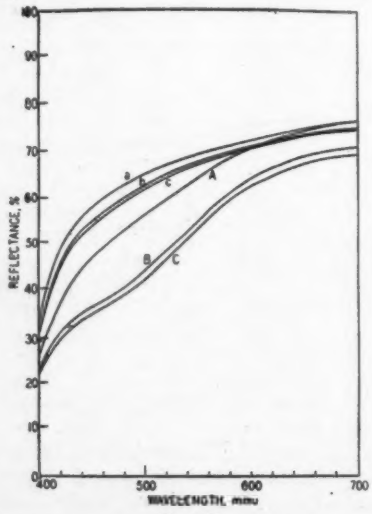


Fig. 13

Curves for groundwood (faded and unfaded) compared with groundwood dipped in sodium lignosulphonic acid (faded and unfaded).

Fading in hours	0	½	1
Untreated	a	b	c
Treated	A	B	C

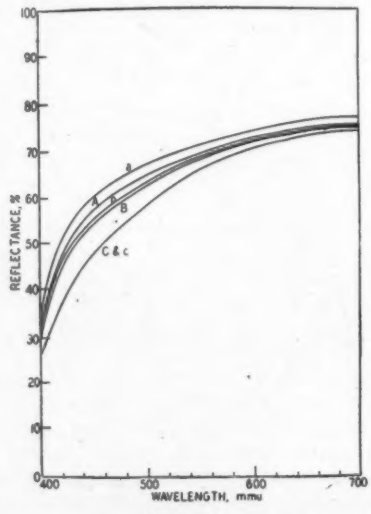


Fig. 14

Curves for groundwood sheets dipped in a dioxane solution of methanol lignin.

Fading in hours	0	15	18
Untreated	a	b	c
Treated	A	B	C

covered with a layer of this film, and normal fading tests were made; no change in brightness was observed for the covered groundwood sheet. This observation prompted consideration of the use in a groundwood sheet of the ultraviolet-absorbing compound present in the cellophane. The manufacturers of the cellophane stated that 1-naphthylamine-4, 8-disulphonic acid was being used but, in place of this compound (which they did not manufacture), they suggested the use of amino G salt. Groundwood sheets were both dipped and sprayed with amino G salt and it was found that the treated sheets faded more rapidly than did the untreated sheets (Fig. 12). As was observed with diethyl dihydrocollidinedicarboxylate, experiments indicate that the amino G salt itself was responsible for a more rapid decrease in reflectance upon exposure of the sheet than was observed for the untreated groundwood. In the communications from the manufacturers of the above mentioned cellophane, reference was made to two patents (U. S. patents 2,129,131 and 2,129,132 (Sept. 6, 1938)) on the use of various ultraviolet absorption compounds as filters for the preservation of packaged foods. The only compound of those listed in the patents which has been tested is 1-naphthylamine-3, 6, 8-trisulphonic acid, although a large number of closely related compounds have been studied and described. 1-Naphthylamine-3, 6, 8-trisulphonic acid is of no value for decreasing the rate of fading of groundwood because of the development of a brilliant yellow color caused by reaction of the acid with the groundwood pulp. Additional experiments should be carried out with other compounds described in the cited patents.

Lignin Compounds.—Another class of compounds with high ultraviolet absorption coefficient was studied. These included both sodium and calcium lignosulphonates and methanol lignin. The reasons for the choice of these particular compounds were: (a) various observations had indicated that they were stable to light and (b) data on the ultraviolet absorption coefficients of lignin compounds indicated that they should have the ideal absorption coefficient for the elimination of fading in groundwood, if the hypothesis is correct that lignin is responsible for the observed fading. Sheets were dipped in a water solution of commercial sodium lignosulphonate neutralized by hydrochloric acid. The original brightness of the unfaded sheet (Fig. 13) was 11.4 points lower than that of the untreated sheet, and the decrease in brightness resulting from the exposure of the samples was much more rapid than for the untreated sheet. A groundwood sheet was dipped in a dioxane solution of methanol lignin and exposed for 18 hours. The spectral reflectance curves of Fig. 14 indicate that the initial rate of decrease of reflectance of the treated sheet is les than that of the untreated sheet.

Literature Cited

1. Van den Akker, J. A., U. S. patent 2,312,010 (Feb. 23, 1943).

Air Resistance of Paper*

Revision of TAPPI Tentative Standard T 460 m-44

This method of test is applicable to papers and paper products which permit the passage of 100 ml. of air in 2 to 1800 seconds, except those which cannot be clamped securely against surface and edge leakage, such as crepe and corrugated papers.

Apparatus

1. *Instrument.* The instrument shall consist of an outer cylinder which is partly filled with oil, and an inner cylinder, having an open or closed top, sliding freely in the outer cylinder. Air pressure for the test shall be provided by the weight of the inner cylinder. The instrument shall be arranged to furnish air pressure to the specimen held between clamping plates having a circular orifice with an area of 1.00 square inch. The clamping plates may form the top of the inner cylinder, or may be mounted in the base of the apparatus, the latter construction being preferable. An elastic gasket shall be attached to the clamping plate on the side exposed to air pressure, and the paper specimen shall be held in contact with the gasket when clamped for test. The purpose of the gasket is to prevent leakage of air between the surface of the paper and the clamping plate.

The gasket shall consist of a thin, elastic, oil-resistant, nonoxidizing material, having a smooth surface. Thiokol and Neoprene, polished plate molded, 1/32 inch thick, 50 to 60 durometer softness, are satisfactory gasket materials. The inside diameter of the gasket shall be 1.125 inches and the outside diameter shall be 1.375 inches. The aperture in the gasket shall be accurately aligned with the aperture in the clamping plates and the gasket shall be securely attached to the clamping plate. To align and protect the gasket in use, it should be cemented by an application of thin shellac into a machined groove, 0.125 inch wide and 0.020 inch deep, in the clamping plate. The groove shall be accurately aligned with the aperture in the clamping plate.

The outer cylinder shall be 10 inches high and shall have an internal diameter of 3.25 inches. It shall be equipped with four bars, each 7.5 inches long, 0.094 inch wide, and 0.094 inch thick, mounted vertically and equidistantly on the inner surface of the outer cylinder to act as guide tracks for the movable cylinder. The movable inner cylinder shall be graduated in units of 50 ml. and shall have a total range of 350 ml. It shall be 10 inches high, and shall have an external diameter of 3.00 inches, and an internal diameter of 2.916 inches. It shall weigh 567 ± 1.0 grams.

Note: Some inner cylinders are also graduated in units of 25 ml. for the first 100 ml., and have a graduation at the 400-ml. interval.

2. *Oil.* The oil used with the instrument shall be a lubricating oil having a viscosity of 60 to 70 seconds Saybolt Universal at 100°F. (37.8°C.) and a flash point of not less than 275°F. (135°C.).

Note: A light spindle oil is suitable for this purpose. Oil is used in preference to water because it does not affect the moisture content of the sample, nor deteriorate the aluminum inner cylinder. The oil should not contain any essential oil, or other easily volatile oil, and for that reason, a minimum flash test is specified.

* This revision has been approved as a tentative standard by the Paper Testing Committee. Criticisms are earnestly requested and should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York 17, N. Y. Reprints of this standard may be obtained from the Secretary at 25 cents each.

Calibration

The apparatus shall be tested for air leakage by clamping a thin piece of smooth, hard-surfaced, air-tight material, such as metal foil or cellophane, between the orifice plates, and testing by the standard method described under "Procedure." The leakage shall not exceed 50 ml. in 5 hours.

Test Specimen

The test specimen shall be approximately 1⅞ inches wide, and 5 inches long, except that specimens of any size larger than 1⅞ inches in both directions may be used in the apparatus having the clamp in the base. The test specimens shall be conditioned for testing according to TAPPI Standard T 402 m.

Procedure

Make the test in an atmosphere conditioned according to TAPPI Standard T 402 m. Place the instrument on a level surface so that the cylinders are vertical. Fill the outer cylinder with oil to a depth of approximately 5 inches, as indicated by a ring marked on the inner surface of the cylinder.

For the instrument having the clamp in the top of the inner cylinder, raise the inner cylinder and hold in a raised position with one hand, clamp the specimen between the clamping plates, then lower the inner cylinder and allow it to float in the oil. Alternatively, the inner cylinder may be removed, the specimen clamped, and the cylinder replaced in the outer cylinder, lowering gently until it floats in the oil.

Note: The proper procedure for clamping the specimen is to hold the inner cylinder in a raised position with one hand, and alternately tighten the knurled nuts so that the clamping pressure will be equal on both sides; or, the inner cylinder may be moved and replaced in the outer cylinder after the paper has been clamped. If only one nut at a time is turned down, the clamp will not bear evenly on the specimen, and air leakage will occur between the surfaces of the clamp and the specimen.

For the instrument having the clamp in the base, first raise the inner cylinder until its top rim is supported by the catch, and then clamp the specimen between the clamping plates. Then lower the inner cylinder gently until it floats.

When a steady movement has been attained, measure with a stopwatch, or other timing device, the number of seconds required for the first two consecutive 50-ml. intervals to pass the rim of the outer cylinder, starting at the zero mark. With very resistant papers the reading may be taken at the end of the first 50-ml. interval and the results doubled. With very open or porous papers a larger volume of air may be read on the inner cylinder and converted to the 100-ml. standard quantity. In cases where it is not possible to obtain a steady movement of the inner cylinder before the zero mark is reached, the test may be started at the 50-ml. mark.

Note: Precautions should be taken to avoid subjecting the apparatus to vibration, as this increases the rate of air displacement.

Test at least five samples with the felt side up and five samples with the wire side up, and average the results. If the mean value of the highest and lowest reading differs from the average of all the readings by more than 10%, additional samples shall be tested until there is agreement within these limits. An irregular sheet of paper may, therefore, require more than ten tests. An isolated very high or very low reading, which is not repeated in duplicate, shall be discarded when a consistent average is obtained without the abnormal reading.

Report

The average number of seconds required for the displacement of 100 ml. of air through an area of 1 square inch of the paper shall be reported as the Air Resistance.

Reproducibility of Results

The agreement to be expected between duplicate series of independent tests is approximately as follows:

Air Resistance, *seconds*	Reproducibility, %
40	5
100	6
200	8
300	10

Additional Information

American Society for Testing Materials Designation D 202-38T, Air Resistance, describes the instrument having an open-top inner cylinder.

Reference

"First Report of the Paper Testing Committee to the Technical Section of the Papermakers' Association of Great Britain and Ireland," pp. 62-66 (1937).

TAPPI Notes

The Western New York Group of the TAPPI Empire State Section will meet at the Prospect House, Niagara Falls, N. Y., on Wednesday evening, December 12, 1945. The meeting which will be a Pulp Bleaching Forum will be held jointly with the Niagara Branch of the C.P.P.A. Technical Section Panel participants will include: F. Casciani, Niagara Alkali Company, H. O. Kaufmann, Buffalo Electrochemical Company, J. S. Reichert, E. I. du Pont de Nemours, L. E. Russell, Mathieson Alkali Company, J. D. Rue, Hooker Electrochemical Company and R. Shearer of the Alliance Paper Mills. W. H. Monsson of the Hooker Electrochemical Company will be the moderator. Questions for the panel should be sent to W. O. Staffer, E. I. du Pont, Electrochemicals Div. Niagara Falls, N. Y. A large attendance is expected.

The next meeting of the TAPPI Ohio Section will be held at the Manchester Hotel, Middletown, Ohio, on December 11, 1945. Measurement of Paper Mill Effluents will be discussed.

Vernon L. Tipka, formerly of the Office of the Quartermaster General is now mill manager for the Paper Corporation of America, Cheboygan, Mich.

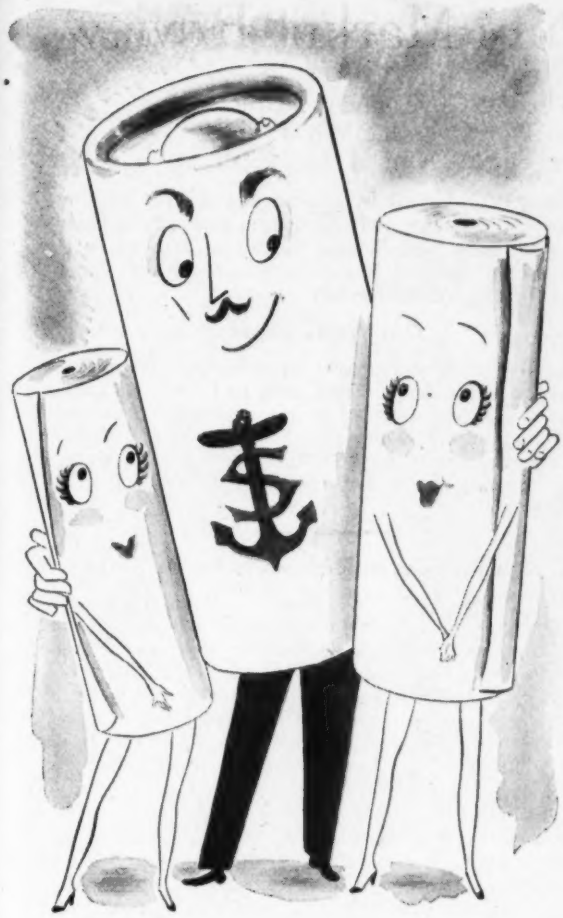
Raymond L. McQuiston, consulting chemist, is now located at 651 Boyleston St., Boston 16, Mass.

Thage Dahlgren, formerly of W. C. Hamilton & Sons is now technical service and salesman for the Pioneer Chemical Works, 940 N. Delaware Ave., Philadelphia, Pa.

Earl O. Knapp, formerly of the Calco Chemical Company, is now chemist for the Auglaize Box Board Company, St. Mary's, Ohio.

John J. McDonald, formerly of the Chemical Warfare Service is now back with the Brown Company, New York, N. Y. as asst. sales manager of the Pulp Sales Division.

The December meeting of the TAPPI Lake States Section will be held Tuesday, December 11, at the American Legion Club House in Appleton, Wis., at 6:30 p.m. John B. Catlin of the Kimberly-Clark Corporation, Dr. Geoffrey Beall of the Institute of Paper Chemistry, and Dr. T. A. Pascoe of Nekoosa Edwards Paper Company will discuss applications of statistical methods in the pulp and paper industry. The subject is one that is beginning to arouse considerable interest in the industry, and the speakers will present several different aspects of the field.



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STEEL STRAPPED
for *Strength* without bulk!

Many a packing routine has been shortened and shipping safety gained by the use of the Stanley Steel Strapping System. Modern packaging practice has proved that lighter crates and cartons banded with steel can often save time and materials in place of bulkier wooden cases.

Whether you use reel, bale, case, crate or carton to ship by land, sea or air – Stanley Steel Strapping will give your packages dependable, double-strength protection. The Stanley System includes tools, reels and accessories for every application. The Stanley Works, Steel Strapping Division, New Britain, Connecticut.

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STEEL STRAPPING AND
CAR BANDING SYSTEMS
MEET ALL FEDERAL STRAPPING SPECIFICATIONS

New York Paper and Pulp Market Review

More Paper Available For Civilian Use As Government Reduces Reserves To 10 Percent — Grand Total of Overseas Wood Pulp Imports Now 443,885 Tons — Paper Stock Demand Is Heavy.

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1945.

Demand for all major types of paper is expected to continue in relatively short supply through the first quarter of 1946. Newsprint, book and wrapping types are currently in shortest supply, with demand for fine paper increasing. Changes in the normal supply of various kinds of paper are reported in the shifting of grades by mills because of unfavorable pricing. The over-all supply is contingent upon the supply of pulpwood and the harvest of wood is dependent upon adequate labor. The present situation is uncertain but prospects are good and may improve.

The index of general business activity for the week ended November 24 rose to 124.1, from 123.7 in the preceding week, compared with 143.7 for the corresponding week in 1944. The index of paperboard production was 165.5, compared with 151.4 in the preceding week, and with 167.7 for the corresponding week in 1944.

Paper production for the week ended November 24 was estimated at 91.4%, compared with 87.2% for 1944, with 87.6% for 1943, with 82.3% for 1942, and with 107.7% for the corresponding week in 1941.

Paperboard production for the week ended November 24 was 91.0%, compared with 91.0% for 1944, with 91.0% for 1943, with 77.0% for 1942, and with 101.0% for the corresponding week in 1941.

With a reduction in government reserves of paper output from 20% to 10%, effective December 1, 1945, an increase in paper for civilian use is indicated. The previous reduction of rag content papers from 35% to 20% was made October 4, 1945. The current reduction, through amendment to paper and paperboard Conservation Order M-241, applies to all types and grades.

Wood Pulp

Imports of wood pulp from overseas totaled 36,250 tons during the week ended November 22, 1945, the Department of Commerce reports. The grand total from V-E Day through November 22, 1945 was 443,885 tons. The bulk of this tonnage consisted of 192,586 tons of unbleached sulphite and 168,048 tons of unbleached sulphate.

Rags

Demand for cotton cuttings is reported heavy at this date with some mills unable to obtain all the quantities desired. Demand is heavy for all grades and the market is strong with prices firm at ceiling levels.

Buying of old cotton rags is heavy this week, with supply reported in some quarters as well under demand. The roofing grades are in very heavy demand with many mills indicating that more supplies are required. Prices are firm at ceiling levels.

Old Rope and Bagging

Demand for Manila rope continues steady, with other fibers in fair demand. No important change in cordage and twine has been reported this week. Prices are unchanged.

Some improvement in the demand for scrap bagging is reported in some quarters at this date. Prices show more firmness. Supplies are limited and any material increase in demand is expected to result in higher levels in scrap and in gunny.

Old Waste Paper

Buying of old waste paper by mills continues steady, with the major demand this week in folded news and in mixed paper. Somewhat less demand is reported in some quarters at this date for old corrugated and book stock. Some mills report packings are improving and returning to pre-war standards. Prices are firm at ceiling levels.

Canadian Technical Sections to Meet

MONTREAL, P. Q., December 4, 1945—Plans are rapidly going forward for the annual meeting of the Technical Section of the Canadian Pulp and Paper Association to be held at the Mount Royal hotel on January 23rd, 24th and 25th 1946. As this is their first post-war meeting, efforts are being made to make this a particularly successful meeting. The committees of the Technical Section have been particularly active this year and therefore it is expected that an unusually fine program will be presented.

Among the subjects planned for formal papers are Bark Burning, Chemical Utilization of Bark, Heat Pumps, Coal Storage, Alkaline Pulping of Softwoods, Bleaching Sulphate Pulp, A New Sulphur Melter, New System of Gas Recovery and Acid Fortification in the Manufacture of Sulphite Pulp, Bleaching of Sulphite Pulp, Sizing of Fine Papers, Stock Chest Agitation, Drying of Paperboard, Methods of Producing Usable Fibre from Wood Waste, Color Printing of Newsprint, Technical Aspects of Slime Control in Paper Mills, Manufacture of Mechanical Pulp from Jackpine, and a number of other scheduled subjects papers for which are not yet definite.

A special panel discussion on wartime developments in the European pulp and paper industry is programmed. It is hoped to have a panel of eight or ten of the technical men who have recently visited Europe and studied the technical developments there in the wartime manufacture of pulp and paper. The discussion will probably be started with several short papers by some of the panel members.

As usual half of the program will be devoted to the smaller, more intimate, type of meetings under the direction of the standing committees and known as group discussions. Subjects planned to date for group discussion include: the use of vortraps on sulphite, the operation of the Jonsson Screen as a sulphite knotter, Flakt dryers, streambarkers on small eastern wood, printability of fine papers and newsprint, sulphite pulp for paperboard manufacture, sizing of paperboards, suction presses for "fine paper" machines, the sizing of fine papers, briner economizer maintenance, etc. A theoretical discussion on the chemistry of pulp fibres is to take place with three informal papers on the subject.

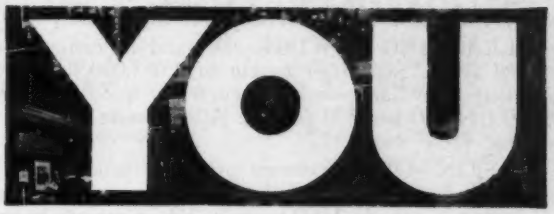
DELIVERIES EASIER ON BAUER PULPERS

"That's right, John. Deliveries really are improving, and we say that despite the recent step-up in orders. Bauer pulpers ordered now will go forward reasonably soon—and that's a lot better than we could do in '44 and '45."

Yes, Bauer pulpers are in demand and are being installed to

- Salvage and turn screen rejects into A-1 stock.
- Develop greater freeness and raise the mullin and tear on semi-chemical other stocks.
- Two sizes, 36" and 24" disc, in full range of plate patterns.

how chemistry's war-born progress affects



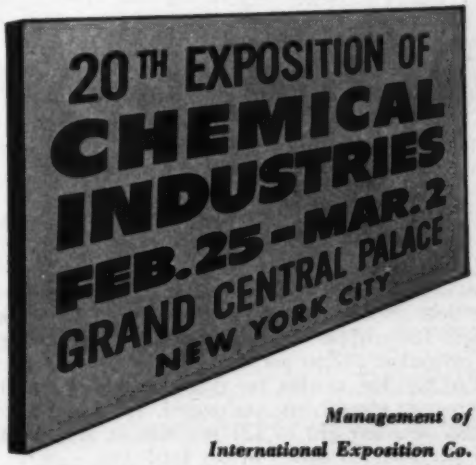
Never before have such profound changes taken place in chemical industry—with so few details generally publicized—as in the war years just past. New techniques, new materials, new equipment, whole new chemical industries have sprung into being. Much has happened which, for security reasons, could not be revealed until now.

Here is your opportunity to see and hear how peacetime applications of war-born changes may affect your plants, your markets, your profits. It's the 20th Exposition of Chemical Industries, which will be held at Grand Central Palace in New York City, February 25-March 2, 1946.

What you will see at the exhibits, what you can learn there by talking with exhibitor's technical representatives, may shape your thought and actions for months to come.

For every chemist, chemical engineer, and production head throughout industry, this year's Exposition is—more than ever before—a "must". No executive responsible for the future of any business depending on chemical process, in his own or customers' plants, can afford to pass it up.

Attendance will pay you well. Be there with your associates!



Management of International Exposition Co.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, December 5, 1945.

BLANC FIXE—The market for blanc fixe is reported unchanged for the week. Current demand continues fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton.

BLEACHING POWDER—Demand is currently reported active. September output of 1,083,000 lbs. below August. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point. Imported, 24 cents per pound.

CAUSTIC SODA—Supply situation continues short, electrolytic output for September lower at 100,189 tons. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CHINA CLAY—Demand for some grades of china clay is reported fair this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Supply tight, September output of 89,600 tons below August. Essential requirements met. Prices unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—No offerings or sales. OPA prices: "G" gum rosin at $6.74 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $6.70 per 100 pounds in barrels, New York. Average price of 70% gum rosin size is currently offered at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Demand reported moderate. Quotations on salt cake continue to remain unchanged. Domestic salt cake is currently quoted at $15 per ton; chrome cake at $16 per ton.

SODA ASH—Market demand for soda ash continue heavy. Output of light ash for September lower at 160,528 tons, owing to labor difficulties. Prices continue unchanged. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Market supply of cash corn higher this week. Shipments moderate. Corn prices are steady. Starch quotations continue unchanged. Pearl is currently quoted at $3.72 per 100 pounds. The powdered grade is currently quoted at $3.83 per 100 pounds. All prices f.o.b. Chicago.

SULPHATE OF ALUMINA—Supply situation reported favorable. Quotations are unchanged. Prices on the commercial grades are quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.75 per 100 pounds. All prices in car lots, in bags, f.o.b. works.

SULPHUR—Demand is reported active for sulphur. Quotations on all grades continue unchanged. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. The current contract prices at Gulf Ports remains unchanged at $17.50 per long ton.

TALC—The market for domestic talc is reported fair this week. Quotations unchanged. Domestic grades are quoted at from $16 to $21 per ton, at mines. Canadian $24 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$61.00	@	—
Sheets	69.00	@	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
Boards, per ton—			
News	*50.00	@	—
Chip	*50.00	"	—
Sgl. Mla. Ll. Chip	*62.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	32.20 "	37.75	33.35 "	39.25
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.00 "	27.00	24.15 "	28.25
65% Rag	.... "	....	22.80 "	27.75
50% Rag	18.70 "	22.75	19.90 "	24.25
25% Rag	16.40 "	20.00	17.55 "	21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$10.55	@ $12.75	$11.70	@ $14.25
No. 2	9.65 "	11.75	9.80 "	13.25
No. 3	9.20 "	11.25	9.35 "	12.50
No. 4	8.90 "	10.75	10.05 "	12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$13.9
No. 2 Glossy Coated	12.40	"	14.0
No. 3 Glossy Coated	11.60	"	13.2
No. 4 Glossy Coated	11.15	"	12.7
No. 1 Antique (watermarked)	10.25	"	11.7
No. 2 Offset	9.60	"	11.0
A Grade E. F.	9.35	"	10.7
A Grade S. & S. C.	9.60	"	11.0
B Grade E. F.	8.85	"	10.2
B Grade S. C.	9.10	"	10.5
C Grade E. F.	8.55	"	9.7
C Grade S. C.	8.80	"	10.0
D Grade E. F.	8.25	"	9.5
D Grade S. & S. C.	8.50	"	9.7

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canada Manufacturers Prices, Less Freight Not Exceeding OPA Allowances

Bl. Softwood Sulphite	$86
Unbl. Softwood Sulphite	74.0
Bl. Hardwood Sulphite	83.5
Unbl. Hardwood Sulphite	71.5
Bl. Mitscherlich	81.0
Unbl. Mitscherlich	72.00 @ 82.0
N. Bleached Sulphate	86.0
S. Bleached Sulphate	79.0
N. Semi-Bleached Sulphate	82.0
S. Semi Bleached Sulphate	75.0
N. Unbl. Sulphate	73.0
S. Unbl. Sulphate	63.5
Bl. Soda	76.0
Unbl. Soda	73.0
Groundwood	50.0

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25
Unbleached Khaki Cuttings	—	"	3.50*

*OPA Maximum Prices

CLAFLIN REFINER

CONTINUOUS BEATING: Three No. 2 Claflins in series. Furnish of Southern Bleached Kraft — 50 tons/day. Pulping operation—through three Claflins—to beaters used only for mixing—to Jordans for final cutting control to paper machine. Total of 540 h.p. on Claflins. Freeness drop from 685 c.c. to 310 c.c.

BATCH BEATING: No. 2 Claflin — Furnish of Southern Bleached Kraft—2,000# batch. Stock pumped from chest into Claflin to another chest. At end of 15 minutes and two passes, Freeness 548, a drop of 72 c.c. At end of 30 minutes, after 4 passes, Freeness 476, drop of 144 c.c. At end of 45 minutes and 6 passes, Freeness 400, drop of 220 c.c. Mullen 72%—548 c.c., 102%—476 c.c. and 145%—400 c.c.

Adaptable also for brushing out fibre bundles and lumps with minimum degree of cutting and reduction of Freeness. (Tissues).

LARGER CAPACITY NO. 3 SOON AVAILABLE

THE HERMANN MFG. COMPANY
LANCASTER, OHIO

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
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Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

ENGLISH FINISH BOOK
SUPERCALENDERED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers, Machine Coated

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

You Paper Mill Men • *take a Tip on Kalamazoo Tile Stock Tanks and Chests • you can't beat them for* STRENGTH *and* DURABILITY •

Kalamazoo Vitrified Glazed Tile

is a "Natural" for Paper Mill Needs—

Smooth, hard, strong, easily cleaned and highly resistant to chemical action, this marvelous vitrified glazed tile type of construction is preferred by scores of leading paper mill executives and engineers. Adaptable for stock tanks and chests of all kinds. Costs no more than concrete tanks that require constant maintenance expense.

An exclusive method of glazed tile tank construction developed by Kalamazoo engineers. It provides greater flexibility and lower cost for all paper mill stock handling problems. Immediately available.

● **Any Size or Shape Desired—**

Wide, narrow—shallow or deep. Round, rectangular or square. Half-round or tapered bottom and corners. Midfeathers and fins where needed to control stock flow. Adaptable to pumps or agitators. Construction individually designed to meet space, tonnage or production requirements.

Ask for engineering data.

Kalamazoo TANK & SILO CO.
KALAMAZOO - MICHIGAN

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Thirds and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.30	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

Pre-War Quotations
All Prices Nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	3.25	"	3.25
No. 1 White Cottons	4.25	"	4.75
No. 2 White Cottons	3.25	"	3.75
No. 3 White Cottons	2.50	"	3.00
No. 4 White Cottons	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shappories	1.30	"	1.45
New Shappories	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.25	@	3.30
Wool Tares, light	3.25	"	3.50
Wool Tares, heavy	3.50	"	3.75
Bright Bagging	3.25	"	3.50
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Oversisse Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Oversisse News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.21	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07½
New White No. 2	.05½
Light Silesias	.05½
Black Silesias, soft	.03½
New Unbleached	.07½
Washable Prints	.04½
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01½
Fancy Percales	.04½
New Black Soft	.03½
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04½
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03½

Domestic Rags (Old)

White No. 1—Repacked	3.00	@	—
Miscellaneous No. 1	2.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Report)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean bright—			
Sisal Strings	.84	"	—
No. 2 Clean bright—			
Sisal Strings	.85	"	—
Sisal Jute	.82½	"	.82¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.90	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Oversisse Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Oversisse News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.21	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Oversisse News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South American	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.84½	@	.84¾
Fancy Percales	.84½	"	.85
New White No. 1	.86¾	"	.87
New Light Flannelettes	.85½	"	.86
Canton Flannels, Bleached	.86	"	.86¾
Underwear Cutters, Bleached	.86¾	"	.86¾
Underwear Cutters, Unbleached	.86¾	"	.86
Silesias No. 1	.86	"	.86¾
New Black Silesias	.83	"	.83¾
Red Cotton Cuttings	.83½	"	.84
Soft Unbleached	.86½	"	.86¾
Blue Cheviots	.85½	"	.86
Fancy	.82¾	"	—
Washable	.82¾	"	—
Khaki Cuttings	.82¾	"	.83
O. D. Khaki	.83½	"	.83¾
Corduroy	.81¾	"	.82¼
New Canvas	.84½	"	.84¾
B. V. D. Cuttings	.86¾	"	.86¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.30	"	—
Old Blue Overalls	2.25	"	2.30
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.25	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Oversisse News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

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PAPER TRADE JOURNAL
15 West 47th Street
New York 19, N. Y.

HELP WANTED

CHEMIST OR CHEMICAL ENGINEER for mill development work in the manufacture of fine writing and printing papers. Permanent position and excellent opportunity. Give full information including experience and age. Address Box 45-760 care Paper Trade Journal. D-13

SALES ENGINEER with knowledge of Pulp and Paper Machinery and experience in merchandising. Write giving background, references and salary expected. Address Box 45-606 care Paper Trade Journal. TF

TOUR BOSS wanted to be trained for job as Assistant Superintendent of Roofing Felt Mill located in New Orleans. Send complete resume giving experience, etc. to Box 45-809 care Paper Trade Journal. D-20

SUPERINTENDENT of Maintenance with paper mill experience, knowledge of power and electricity. Must be college graduate. Give full information including experience and age. Address Box 45-769 care Paper Trade Journal. D-20

WANTED—Engineer Draftsman for Pacific Coast sulphate pulp and paper mill. Please give full particulars in first letter. Address Box 45-772 care Paper Trade Journal. D-13

WANTED—Millwrights and Stationary Engineers for Paper Mill in Ohio community of 6,000 population. Address full particulars in first letter to box 45-802 care Paper Trade Journal. D-20

WANTED—Chemical Engineer, experienced sulfate pulping process. Knowledge of stream pollution work desirable. To travel in south. Salary $5,000. Address Box 45-793 care Paper Trade Journal. D-6

WANTED—Plant Engineer for pulp and paper mill in India. Must be able to plan and supervise extension of mill and installation of New paper machine and recovery furnace. Must also be experienced in operation of power plant. Address Box 45-791 care Paper Trade Journal. D-6

WANTED—Machine tenders and Back Tenders for cylinder machine mill located in southern Ohio making test liner grades. Address Box 45-788 care Paper Trade Journal. D-20

WANTED—Night Boss for medium sized Board Mill in New York area. Must be good paper maker and successful leader of men. Address Box 45-784 care Paper Trade Journal. D-27

WANTED IMMEDIATELY — Mill Manager for large modern bleached kraft pulp mill now under construction. Excellent opportunity for man with experience, initiative and ability. Please reply in detail stating experience, personal history and salary expected. Address Box 45-810 care Paper Trade Journal. D-6

SALESMAN WANTED for upper and central New York territories by large chemical manufacturing company. Excellent opportunity for a man located in that vicinity with knowledge of paper industry. Chemical background desirable, miscellaneous chemicals also handled. Write fully, giving experience and details. Address Box 45-800 care Paper Trade Journal. D-13

SITUATIONS WANTED

PULP AND PAPER ENGINEER

Many years research development and practical operating experience in the pulp and paper industry.
Have perfected method of reducing production cost and improving pulp quality.
Installation will pay for itself in a short time.
Have been employed as Consulting Engineer by large company for period of years.
Looking for connection with concern which desires to increase profits.
Prefer medium size plant having sulphate or soda process.
Address Box 45-711 care Paper Trade Journal. D-6

CHIEF ENGINEER — Expert Master Mechanic and machine shop superintendent. Inventor and designer of papermaking and paper converting machinery, and processes. Supervisor of building construction, plant maintenance and plant layout. Expert on wage incentive, time study, production control, efficiency and cost control methods. Have built complete mills. Good executive and organizer. Open for engagement soon. Box No. 45-710 care Paper Trade Journal. N.C.

MILL BUILDERS

Black-Clawson, the only supplier in the paper industry in position to engineer and build an entire mill—all the way from hydrapulpers to winders.

Take advantage of their broad and long experience in stock preparation and machine building. Benefit from their ability to integrate all operations into a smooth operating whole. Center all responsibility in one responsible supplier.

Black-Clawson engineers available for consultation at any time.

THE BLACK-CLAWSON CO., Hamilton, Ohio

Divs.: Shartle Bros. Machine Co., Middletown, Ohio
Dilts Machine Works, Fulton, New York

Associate:
Alexander Fleck Limited, Ottawa, Can.

Dilts

SITUATIONS WANTED

PRACTICAL SUPERINTENDENT on high grade folding boards. Sulphite and ground wood specialties. Test liner, etc. Address Box 45-739 care Paper Trade Journal. D-13

ACCOUNTANT—Expert Paper and Pulp Mill Costs, thorough knowledge paper mill practice gained through twenty years in the industry, desires connection where initiative and ability will be recognized. Address Box 45-748 care Paper Trade Journal. D-20

SUPERINTENDENT—20 years experience in paper bag conversion of grocery, sacks and aniline or oil ink specialty bags. Capable of handling all bag shop problems. Thorough experience in supervision of help, maintenance and repairing of machines. Address Box 45-749 care Paper Trade Journal. D-6

PAPER CONVERTING SUPERVISOR. Available, years Supervision, Cutting, Packing, Clerical, various papers. Address Box 45-754 care Paper Trade Journal. D-13

PAPER MILL SUPERINTENDENT — Now available. Seeks position Supt. or Asst. Supt. Converting grades, Kraft, Tissues. Address Box 45-795 care Paper Trade Journal. D-20

SALES OR INSIDE POSITION—30 years experience fine and coarse papers. Address Box 45-782 care Paper Trade Journal. D-6

PAPER TECHNOLOGIST—Several years operating and technical experience in fibreboard and boxboard mills and laboratories; manufacture and sales of rosin and wax sizing, etc. seeks position in paper industry. Address Box 45-796 care Paper Trade Journal. D-6

SITUATIONS WANTED

PAPER CHEMIST—with machine coating and asphalt emulsion experience, seeks position with a board mill. Address Box 45-797 care Paper Trade Journal. D-20

EXECUTIVE—At present of national folding carton manufacturer. Interested in connection with smaller manufacturer seeking young man with extensive experience to manage and expand sales. Replies confidential. Address Box 45-786 care Paper Trade Journal. F-28

PAPER ENGINEER—15 years paper mill experience. Practical operating, production and quality control, cost, development, maintenance, construction. Address Box 45-783 care Paper Trade Journal. D-13

PUMP—Application engineer seeks change of employment. Familiar with sales and selections of all types of pump applications for pulp and paper mills. Excellent record with a leading company in this field for over 10 years. Address Box 45-764 care Paper Trade Journal. D-6

SUPERINTENDENT—With technical as well as practical experience on cylinder products, such as, Tag, Butter, Carton, Bristols, Milk Cap and other ground wood specialties. Can also take charge of pulp mill. Address Box 45-778 care Paper Trade Journal. D-20

FORESTRY—Desire position in Forestration or Lumber Work; 42, single; Navy veteran; 3 years forestry, Penn State; 2 years manager of Balsa Wood plantation in Ecuador; speak Spanish; opportunity not salary important. Address Box 45-807 care Paper Trade Journal. D-6

FOR SALE

REVAMPING AND BUILDING MILL AND CAN OFFER FOR SALE

One large Brooker Beater complete
One small Beater Complete
1—90" Diameter X 90" Face cylinder mold
1—Bed Shartle Duplex plunger stock pump
1—New pair cast steel double suspension spring type beater bearings for 8" diameter journal—Noble & Wood beater roll. Never used
1—Used old style lighter beam for 8" diameter journal Noble & Wood beater
1—New reinforced design lighter beam for 8" diameter journal—Noble & Wood beater roll. Pattern No. 983. Never used.
1—500 KVA —2300-2300/4600 volts transformers
90—62" Face steel dryer felt rolls—1—7/16" journals
1—62" Face cast iron taper pulley—2 15/16" bore taper 21"x23½"
4—62" diameter x 62" face dryers
1—2" to 12" Cox & Sons Pipe threading machine
1—20" Noble & Wood Impeller for circulating stock in beater.

A visit to the mill would prove profitable as we have many items for sale to numerous to mention. See our superintendent Mr. O. P. Fancoli at our plant in Wallcomsac, New York.

WALLCOMSAC PAPER MILLS, INC.
Mills: Wallcomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, New York TF

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore, 30, Md. TF

FOR SALE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beaters.
1—1000 lb. Dayton Beater.
3—400 lb. Gavit—iron tub beaters.

CALENDER STACKS
1—11-Roll 92" Face Calender Stack—complete with Drive.
1—36" 7-roll—Holyoke Machine.
1—Finishing Calender—3 rolls—44" face.
1—Finishing Calender—3 rolls—64" face.

CENTRAP
1—Shartle Brothers Centrap.

CONVEYOR
650'—3¼" Roller Conveyor Section—18"x10'.

CYLINDER MOULDS
1—36" diameter x 54" face.
8—30" diameter x 72" face.

DIESEL ENGINE
1—60 H.P. Fairbanks Morse Diesel Engine, connected to a 40 KVA Generator.

DRIVES
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM to 418 RPM.
1—Pulmax Drive.
1— 7 Reeves Drive.

DRYERS
10—36" dia. x 70" face, complete with frames and gears.
23—36" diameter x 82" face.
12—36" diameter x 68" face.
13—60" diameter x 154" face.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby).
1—15" diameter x 84" face. (Baby).
1—36" diameter x 116" face.
2—28" diameter x 68" face.

EMBOSSER
1—28" two roll Embossing Calender.

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREENS
1—18 plate Flat Screen, with scraper.
3—12 plate Murray Dunbar Flat Screens.

JORDANS
1—#2 Miami Jordan.
1—Pony Horne Jordan. Spare New Fillings.
1—Black-Clawson Jordan (belt driven).
1—#9 Emerson Jordan—for direct connection of a motor — requires use of 400 H.P. motor.
1—Smith & Winchester.

MOTOR
1—150 H.P. G. E. Induction Motor—3/60/220-875 r.p.m.—including starting equipment.

PULP EQUIPMENT
1—84" Carthage Chipper—complete and in excellent condition.
1—32" three pocket Glens Falls Grinder (for 27" wood).
3—Rotary incinerators—9' diameter x 20' long.
4—27" four pocket Sandy Hill grinders (for 24" wood—including 1000 H.P. motor for each, starting equipment, etc.).

PULPERS
1—#2 Lannoye Pulper.
1—Jones Pulper

PUMPS
1—Buffalo Pump—5500 g. p. m., direct connected to 100 H.P. Motor (50' head).
1—Shartle Brothers—8 x 18 Triplex.
3—Worthington Turbine Well Pumps—300 g.p.m. for 14' and 16' depths—with motors.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REELS
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.
1—3 Drum Reel—72" face.

REFINERS
2—#1 Claflin Refiners.

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

SCREW PRESS
1—Valley Iron Screw Press.

SHREDDERS
1—#25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder—used one year.

SHEETERS
1—110" Horne single knife rotary sheet cutter.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SIZING MACHINE
1—36" Waldron sizing machine.

SLITTERS
1—60" Hudson Sharp two shaft Slitter & Winder.
1—72" Kidder two drum Slitter & Winder.
1—110" Beloit slitter (slitter attachment only).
1—116" 4 drum Moore & White Slitter and Winder.
1—60" Moore & White Slitter and Winder set for ⅝" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—72" Moore & White shaft winder.
1—42" Johnstone Slitter and Winder.
1—4 Drum 108" trim Moore & White.

STACKER
1—Lewis Shepard—1000 lb. capacity—12' lift—motor included—Equipped with safety devices.

STEAM ENGINE
1—100 H. P. Ames Steam Engine connected to a 75 K. W. Westinghouse Generator.

SUCTION BOXES
1—Nash 100" face Suction Box.
3—Brass Suction Boxes—90" drilled face.
2—Brass Suction Boxes—77⅛" drilled face.

SUCTION COUCH ROLL
1—Sandusky Suction Couch Roll — 18" diameter x 130" face — Complete with Sturtevant Vacuum Pump and drive mechanism.

TRIMMER
1—40" Brown & Carver Trimmer.

WET MACHINES
2—84" Appleton Single Press Wet Machines.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

J. J. ROSS COMPANY

250 Frelinghuysen Ave. **Tel.—Bigelow 3-3720** **Newark 5, N. J.**

FOR SALE | FOR SALE | FOR SALE

(Note the Name)

Ross Paper Machinery Co., 265 Passaic St., Newark 4, N. J., Humboldt 2-2177

1 COMPLETE FOURDRINIER MACHINE MILL. Wire 50′ x 79″; 25 Dryers, 2 decks, 68″ trim; 20 ton capacity; hydro electric plant; 240 KVA. This mill in operation. Must be sold at once. Price $60,000, including real estate.

BEATERS
1—2500 lb. Downingtown Iron Tub.
2—1000 lb. Horne Iron Tub.
1—1200 lb. Holyoke Wood Tub.
1—2000 lb. E. D. Jones Iron Tub Beater. with washer-rebuilt.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104″ face with frames.
1 set of 8 Warren Doctors 88″ face with frames.

CALENDER STACKS
1—6 roll Beloit. 110″ face.
1—11 roll Pusey & Jones. 104″ face.
1—9 roll Rice Barton 99″ face.
1—3 roll Moore & White 86″ face.
2—2 roll Holyoke 36″ face.
2—9 roll Moore & White—82″ face.

CONVERTING EQUIPMENT
2—Hudson Sharp 63″ Slitters and Folding Machines for converting facial tissue. With motors and starters.
1—Dietz 65″ Toilet Converter. With motor and starter.
1—64½″ Hudson Sharp Toilet and Toweling converter. With motors and starters.
2—Sanitary Napkin Machines. With motors and starters. Capacity 105 pads per minute each.
1—Bliss Double Head Stitcher.
1—Boston Single Head Sticher.
1—Bliss Box Assembling Machine.
4—Waterville Grinders.
1—36″ Waldron Reeling Machine.
1—36″ Dampening Machine.
1—36″ Brush Coating Machine.
1—Copper Mixing Tank with agitator—40 gal.
1—Cast Iron Kettle 20″ x 24″ 2 outlets.

CONVEYOR
1—Standard Conveyor 30′ long on wheels for handling bales of pulp. Direct connected to 5 h.p. motor.

DRYERS
1—48″ diameter x 88″ face.
4—60″ diameter x 174″ face framed and geared.
1—30″ diameter x 102″ face with bearings.
1—Beloit Yankee. 186″ face, 12″ diameter with Messinger Bearings.
18—36″ diam. 82″ face 2 deck frames.
98—28″ diam. 96″ face 2 deck frames.

EXTRACTOR ROLLS
1—Downingtown 24″ diameter, 135″ face, with rubber couch 18″ diameter.

FESTOON DRYERS
100″ Proctor & Schwartz
60″ Proctor & Schwartz

FLAT SCREENS
1—Moore & White 8 Plate.
1—Moore & White 10 Plate.
1—Sandy Hill Packer 10 Plate.
1—Trimbey Pulp Screen 30 ton cap.

HEADING MACHINE
1—W&W Heading Machine—electric heated head.

JORDANS
1—Dillon No. 2 Motor drive.
1—Appleton No. 2 motor drive.

KNIFE GRINDER
1—72″ Seybold automatic used one year.

LATHE
1—Sidney Machine & Tool Co. quick change. 10′ centers, 24″ swing; 2 chucks; and Face Plate.

MISCELLANEOUS
700—Cameron slightly used Slitter Knives—$1.00 each. Purchased from a war cancellation.
2—Yankee Dryer doctor oscillators (Beloit)
2—Nugent Oil Filters (new).
2—Beloit Fourdrinier Shakes.

MOTORS
4—1000 h.p. motors, 2300 volts with all controls.
1—30 h.p. 600 R.P.M. 2300 V. 3 Ph. 60 cy.
1—40 h.p. 3600 R.P.M. 2300 V. 3 Ph. 60 cy.

PLATERS
2—Holyoke 2 Roll 18″ dia. 36″ face.

PULLEYS
185—Cone Lift and Solid Cast Iron Pulleys. *Various Sizes.*

PULP EQUIPMENT
Complete Ground Wood Mill—
4—Sandy Hill four pocket Grinders. Each direct connected to 1000 h.p. motor, 2300 volts. 27″ stones. Spare stones, etc. Excellent condition. Will sell all or part.
2—Pusey & Jones vertical Digesters (welded) 7′ dia., 24′ high 125 lb. pressure.
8—Horizontal Digesters 15′ diam. 47′ face 150 lb. pressure.
3—Improved No. 2 Knotters.
1—Nichols-Herreshoff Lime Kiln.
1—Williams No. 30 Bark Hog.
1—Sumner Disc Barker 72″ dia.
1—36″ Bauer Bros. Single Revolving Disc Mill. Direct connected to 50 h.p. motor, 3 phase, 60 cycles, 220 volts, 1160 r.p.m.
1—Carthage 4 pocket 27″ grinder. Ball bearing equipment.
1—120″ face Kamyr Press.

PULPERS
1—E. D. Jones direct connected to 60 h.p. motor with starting equipment.
1—Sturtevant Bale Pulper with conveyor & motors used three years.
1—Voith Pulper 20 tons cap.

PUMPS
1—Frederick 400 g.p.m.—60′ head.
1—Pusey & Jones 3″ x 8″ Stock.
1—DeLaval 6″ x 6″.
1—Oliziti Acid 3″ Suction.
1—Midwest 6″ stock pump.
1—Frederick 550 g.p.m. 132′ head.
1—Frederick 400 g.p.m. 60′ head.

REELS
2—Pusey & Jones 104″ face 18″ dia. bowls.
1—Pusey & Jones 115″ face 18″ dia. bowls.
1—2-bowl 100″ face 20″ dia. bowls.

REFINERS
1—10″ Wiener Refiner with Regulating Valves.
2—1 Claflin Refiners. Bronze construction.

RIGHT ANGLE WORM GEAR DRIVES
1—Cleveland 2 H. P.—10 to 1 ratio.
1—Philadelphia 15 H. P.—60 to 1 ratio.
1—Oliver 5 H. P.—51 to 1 ratio.
1—Grant 2 H. P.—33¼ to 1 ratio.
1—Cleveland 2.3 H. P.—40 to 1 ratio.
1—Cleveland 1.2 H. P.—60 to 1 ratio.
1—Grant 2 H. P.—7 to 1 ratio.
1—Philadelphia 2 H. P.—600 to 1 ratio.
1—Philadelphia 15 H. P.—60 to 1 ratio.

ROLL GRINDER
1—Lobdell Roll Grinder. Will take roll 24″ diameter x 160″ face.
1—Farrel Roll Grinder. Will take roll 28″ dia. x 168″ face, with motors, starters and crowning attachment.

ROLLS
140—Table, Dress, Felt, Wire, Breast and Calender Rolls. *Various Sizes.*
2—84″ face size press rolls. Top roll ebonite; 16″ dia. Bottom roll 36 density rubber —14″ dia.

SATURATOR
1—Guyton-Cumfer 5 gates.

SAVEALLS
1—A. D. Wood cylinder 48″ dia. 60″ face.
1—Dorr Company #40 ADKA Saveall 340 —440 GPM. Used 1 month.
1—Dorr Company #50 ADKA Saveall 550—680 GPM. Used 1 month.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—86″ Hamblet Single Knife Sheeter with Moore & White layboy; 4 roll backstand.
1—125″ Horne Duplex Sheeter.

SLITTERS AND WINDERS
1—88″ face, two drum Warren Slitter and Winder.
1—116″ Moore & White 4 drum slitter and winder with motor and starter. Will rewind 50″ diameter. Complete with 3 ton Sprague Electric Hoist.
1—100″ face 2 drum Warren Slitter and Winder.

STOKERS
2—Iron Fireman Pneumatic Spreader Stokers for two—300 h.p. boilers. Complete with undergrates, fans, aly ash fans, weight lery, portable car unloader. All direct connected to motors with starters. Used 1 year.

STUFF PUMPS
7—10″ x 20″ Shartle triplex.
1—8″ x 18″ Shartle triplex.
1—12″ x 16″ Shartle triplex.
1—12 x 12 Goulds Triplex.
1—7″ x 16″ Shartle triplex.

SUPERCALENDER STACKS
1—7 roll Holyoke 72″ face; 3 paper and 4 iron rolls. 1 new spare paper roll.
1—7 roll Holyoke 52″ face; 3 paper and 4 iron rolls. 1 new spare paper roll.

THICKENERS
1—Shartle Bros. Thickener. Cylinder Mold 72″ face x 36″ diameter with 18″ diameter couch.
4—Improved Paper Mchy. Co. Thickeners. Cylinder mold 132″ face x 48″ diameter, with 24″ diameter couchs.

TRIMMERS
1—56″ Smith & Winchester Undercut with motor.
1—30″ Eureka Hand Operated.

TURBINES
1—Westinghouse Turbine Generator 3125 KVA—600 volts—3 phase—60 cycle—30 lb. back pressure.
1—General Electric Turbine Paper Machine Drive. 250 h.p.—350 r.p.m. 125 lb. steam pressure.

TWISTING MACHINES
1—36 Spindle Brownell Twister with motor.

UNWINDERS
1—52″ Johnstone Uniform Tension Unwinder with auto, hydraulic brakes. Used 6 months.
1—42″ John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
1—14″ x 20″ Connersville.
1—12″ x 18″ Connersville.

WASHERS (Beaters)
1—54″ face—45″ diam. with rigging.
1—52″ face—52″ diam. with rigging.

WELL PUMP
1—A. D. Cook 100 g.p.m. 175′ head, 70 feet in well 6″ drop in pipe—5¾″ bronze double acting cylinder. Direct connected to 10 h.p. motor.

YANKEE DRYER
1—Beloit 186″ face 12′ diameter with Messinger Bearings.

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY
LIBERAL ALLOWANCES FOR YOUR USED MACHINERY.
We will buy from a single item to complete mill—including real estate.

FOR SALE

FOR SALE

66" x 46"—Sheridan 4—Past Model #25 Die Cutter.
36", 48", 72" Automatic Power Paper Cutters.
1, 2 & 3 Color, Meisel Rotary Printers.
12" x 16" Kidder 2-color Printer with all Attach.
15½" x 18" — Seybold 4-Post Embosser, Elec. Heated.
46", 50", 56" Miehle, Printers & Die Cutters.
40" & 52" Single & Double, Roll Coaters.
50" Waldron 6-Roll Polisher Coater.
72" Four Bar Slitter & Creaser.
Several sizes of Slitters & Rewinders, Creasers and Scorers. Write for latest Bulletin No. 124, listing over 100 Paper & Board Converting, Finishing, Box Making & Packaging Machinery—now on our floor. All Rebuilt & Guaranteed.

SOUTH WABASH ENGINEERING CO.
2937 S. Wabash Ave., Chicago 16, Illinois
F-14

4—Rotary Sheeters—60" and 84" Clarks and 84" Hamblet with Moore & White Layboy.
1—Used Valley Iron Works Pulp Screw Press with herringbone speed reducer. Excellent condition.
1—Complete equipment for making 12" wide household waxed paper rolls, 1—Brightwood box machine, 1—National Metal Edge and 1—Schultz automatic roll machine.
1—E. D. Jones Imperial Jordan with 5/16" solid steel fillings and extra new plug filling directly coupled to 150 hp G.E. AC motor. Capacity 60 tons 24 hours. A-1 condition.
1—60" Meisel Heavy Duty Shear Cut Slitter & Rewinder.
1—76" Smith & Winchester Undercut Power Paper Cutter complete with suitable motor equipment. Rebuilt and guaranteed.
Complete line of Self-Opening Bag Machines making from 1/2 to 25 lbs. inclusive. Also 2 flat and Square Bag Machines making 1/4, 1/2 and 1 lb. and the other 4 lb. bags.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.
TF

FOR SALE

2—iron end vats with molds 48 x 127
2—rubber covered couch rolls
3—sets primary press rolls, all rubber covered, one set 14", two sets 16", all 126" face
3—pair main press rolls 24 x 126", all rubber covered
36—rubber covered felt rolls 9¾ x 138"

Box No. 45-801 care Paper Trade Journal.
D-13

FOR SALE

1—Shartle Miami 8 x 18 triplex stuff pump
1—Shartle Miami 10 x 20 duplex stuff pump

Above pumps in good condition.

SHARTLE BROTHERS MACHINE CO.
Middletown, Ohio

FOR SALE

1—68" Cylinder Paper Machine, 2 presses, either 15 or 23 dryers, complete with drives and line shafting.

OSBORNE PAPER MILL EQUIPMENT CO.
Fulton, N. Y.
D-6

FOR SALE

FOR SALE

78" LANGSTON CUT-OFF KNIFE
36", 44", 48" PAPER POWER CUTTERS
66" x 46" SHERIDAN 4-POST DIE CUTTER
1 & 2 COLOR MEISEL ROTARY PRINTERS
12" x 16" KIDDER 2-COLOR ROTARY PRINTER
15" x 18" SEYBOLD 4-POST EMBOSSER
56", 50", 46" MIEHLE PRINTERS
50" WALDRON 6-ROLL POLISHER COATER
64" WALDRON DRUM REWINDER
52" DOUBLE SIDED COATER & SPREADER

ALSO SLITTERS & REWINDERS, CREASERS, SCORERS, TRIMMERS, GLUERS, STITCHERS, CORNER CUTTERS AND NUMEROUS PAPER & BOARD CONVERTING MACHINERY. WRITE FOR BULLETINS, LISTING OVER 100 MACHINES, NOW AVAILABLE.

SOUTH WABASH ENGINEERING CO.
2937 South Wabash Ave., Chicago 16, Ill.
J-24

FOR SALE—BEATER FILLINGS

210 Heat Treated Fly Bars 6" wide, 5/8" cutting edge, 3/8" back, 60" lond edge, for E. D. Jones bandless beater rolls, ⅓ price.

2 Sets new oak wood fillings for E. D. Jones, 70 bar banded beater rolls, 67" dia., 60" face—cost $280. Will sell for $125.00.

OSBORNE PAPER MILL EQUIPMENT CO.
Fulton, N. Y.
N.C.

FOR SALE

1—16 x 24 Connersville Pump. Can be inspected at our plant.

MUSKINGUM FIBER
Coshocton, Ohio.
D-13

FOR SALE

Four cylinder machine
Molds 90" face
1 Beloit suction drum roll
1 pair squeeze rolls
2 main presses
36 dryers
3 calender stacks
2-spool reel
Slitter
White water pumps
new drives

SHARTLE BROS. MACHINE CO.
Middletown, Ohio
D-27

GOOD EQUIPMENT FOR SALE

34" and 40" Slitters.
41" Hamblet Sheeter.
80" and 110" Mill Type Sheeters.
48" Brown & Carver Auto. Power Cutter.
63" Oswego Hand Clamp Cutter.
62" Two-roll Back-stand, new.
36" Waldron Paper Reel.
30" Waldron 7-color Wall Paper Printing Press.
68" Rice, Barton & Fales Slitter-Rewinder, for use on dry end of paper machine.
14 x 22 John Thomson.
Balers—New—both hand and power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18, N. Y.
TF

FOR SALE—44" Seybold Cutter, guaranteed to be in good operating condition. Address Box 45-804 care Paper Trade Journal. D-6

FOR SALE

FOR SALE

1—11 x 15 Erie twin variable speed engine
1—14 x 14 x 16 Erie Ball twin variable speed engine
1—10 x 20 Shartle duplex stuff pump
1—8 x 18 Shartle triplex stuff pump
1—8 x 18 Shartle single stuff pump
1—7 x 16 Shartle duplex stuff pump
4—Black-Clawson 4 x 10 duplex stuff pumps

SHARTLE BROS. MACHINE CO.
Middletown, Ohio
D-17

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE—News print felts—2 second press 54' x 220"; 2 first press 40' x 220"; 1 drier felt—Asten—214" x 385'. Address Box 45-759 care Paper Trade Journal. D-6

FOR SALE — Two Waterbury Speed Drives, Size 20, Type C, one rebuilt. Frank H. Davis Company, 175 Richdale Ave., Cambridge, 40, Mass. D-13

FOR SALE—Toilet Paper Winder (Roll) Deitz 81" ready for delivery. Now located Eastern Seaboard City. Address Box 45-806 care Paper Trade Journal. D-6

FOR SALE—126 drums Paisley asphalt rubber cement. Suitable for sealing and waterproofing cartons or paper containers of any kind also suitable for mfg. purposes. SURPLUS AND SALVAGE CO., INC., Main Street, Jamestown, N. Y. D-13

FOR SALE—Jones 2000 lb. iron tub beater, in perfect condition; Holyoke 1000 lb. iron tub beater, in perfect condition; 92" Langston Winder; 84" Kidder Winder; 72" Hamblet Cutter; 84" Cutter and Layboy. Frank H. Davis Company, 175 Richdale Ave., Cambridge 40, Mass. D-20

SPECIAL NOTICE

Notice is hereby given that Flavio Cattani and Cyrus Cattani, trading as JOBO PAPER MILL CO. at Louck's Mill Road, York, Pennsylvania, have on December 1, 1945, sold the above plant to the Yorktowne Paper Mills, Inc., Howard J. Sparler and Daniel J. Sparler. D-6

AGENCIES WANTED

SALESMEN now calling on paper and textile mills of the Southeast would like to have machinery or supply account on drawing or commission basis. Adequate experience and acquaintance in these industries. Write P. O. Box 454, Greenville, S. C. D-6

SALES REPRESENTATION

VENEZUELAN—From long established sales organization actively covering entire country, seeking exclusive representation of first class American manufacturer for immediate possibilities or for later development. First class references. Manager at present in New York, will discuss matter personally. Please write Box 45-805 care Paper Trade Journal. D-6

WANTED

WANTED

Rag cutter
Indenting rolls
Reversing drive for calender stacks
Drive for second press rolls
Double knife sheeter
Roll laminator or combiner
Variable speed turbine, 80—100 HP
Address: Box 45-781 care Paper Trade Journal. D-13

WANTED

WANTED
Used Equipment

One Kidder Spot Sheeter and Erie Layboy 65 inch width. One 65 inch to 72 inch Seybold or other good make power operated straight knife. Give serial number, condition of the machines and other pertinent information in reply. Address Box 45-794 care Paper Trade Journal. D-20

WANTED

2-machine mill for toweling and tissue, either in New York state or in New England. Address Box 45-766 care Paper Trade Journal. D-27

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 44-835 care Paper Trade Journal.

IN the market for one used but in first serviceable condition Paper and Cloth-gumming Machine, 63" wide. Send proposals to Mr. Ciro A. Martinez, Purchasing Agent, Apartado Postal No. 755, Monterrey, N. L., Mexico. D-20

WANTED—Brightwood Box Machine. Address Box 44-836 care Paper Trade Journal. tf

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. **LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS.** TF

WANTED—Paper Towel Converting Machinery —all types and folds, mainly C fold. Address Box 45-771 care Paper Trade Journal. D-6

WANTED—Flat and Square Bag also Sack Machines. In your reply, please give make, price and condition of machine. Address Box 45-773 care Paper Trade Journal. D-6

WANTED—ANILINE PRESS—for 2 or 3 color, 17 to 40" with sheeter. Address Box 45-803 care Paper Trade Journal. D-6

WANTED—Small Paper Mill preferably located in New York State. Advise details of facilities and equipment. Address Box 45-799 care Paper Trade Journal. D-6

WANTED—Cameron #6 slitter and rewinder —50" x 36" dia. preferred. Also—paper tube-rewinders, cut off machines, recutters, glue pots, Bliss 6 N. presses. State age, condition, price. Address Box 45-792 care Paper Trade Journal. D-27

WANTED—AGENCY AVAILABLE IN BELGIUM. Will be in U. S. in January with view to purchasing for Belgian Syndicate—principally interested in box boards, wrapping papers, writing papers, bank and unprinted wall papers. Address Box 45-768 care Paper Trade Journal. D-6

WANTED

WANTED—Individual interested in purchase of small folding carton plant. Replies held in confidence. Address Box 45-787 care Paper Trade Journal. F-28

WANTED—1 Wet Machine with press rolls not less than 50 inches wide. Address Box 45-785 care Paper Trade Journal. D-20

WANTED—40" to 42" Hamblet Sheeter, as is. Export. Cash ready. Address Box 45-808 care Paper Trade Journal. D-13

GOVERNMENT BIDS

PROPOSALS

FOR FURNISHING

PAPER AND ENVELOPES FOR THE U. S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a. m., December 10, 1945, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding, and blank paper and plain envelopes for the use of the Government departments and establishments in the District of Columbia, for the terms of 3 months for paper and 6 months for envelopes beginning January 1, 1946, deliveries to be f. o. b. Government Printing Office Warehouse or warehouse siding, Washington, D. C. The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposals. The Committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedule, and specifications, may be obtained by addressing A. E. Giegengack, Public Printer, Washington, D. C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 15 of the proposal for paper and paragraph 13 of the proposal for envelopes.

The approximate estimated quantities set forth in detail in the schedules comprise:

PAPER

500,000 pounds newsprint paper; 200,000 pounds telephone book news; 1,950,000 pounds machine-finish book paper; 200,000 pounds English-finish book paper; 2,600,000 pounds offset book paper; 50,000 pounds antique book paper; 50,000 pounds light-weight machine finish book paper; 90,000 pounds 50% antique book paper; 800,000 pounds supercalendered book paper; 700,000 pounds machine-coated book paper; 40,000 pounds dull coated book; 1,600,000 pounds mimeograph paper; 200,000 pounds duplicator copy paper; 100,000 pounds U S M O Safety writing paper; 7,400,000 pounds writing paper; 500,000 pounds map paper; 610,000 pounds manifold paper; 1,720,000 pounds bond paper; 1,150 000 pounds ledger paper; 790,000 pounds index paper; 165,000 pounds cover paper; 150,000 pounds manila paper; 40,000 pounds drumhead manila paper; 300,000 pounds kraft paper; 40,000 pounds blotting paper; 100,000 pounds tag board; 50,000 sheets railroad board; 250,000 pounds wood cardboard; 3,000,000 pounds postal card paper; 100,000 pounds news board; 270,000 pounds binder's board; 160,000 pounds chestnut coverboard.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

ENVELOPES

17,100,000 Kraft; 5,550,000 Writing, Chemical Wood, white and colored; 270,000 100% Writing, white; 1,050,000 25% Bond, white; 400,000 100% Bond, white.

By direction of the Joint Committee on Printing.

A. E. GIEGENGACK,
Public Printer.

WASHINGTON, D. C.
November 26, 1945. D-6

BUSINESS OPPORTUNITY

ASK YOURSELF FRANKLY

"WILL IT PAY TO SELL MY BUSINESS"

TODAY'S unusual industrial conditions may well justify you in turning your business—FOR CASH—to a new management. As a reputable operating organization of long experience, with substantial capital, we can bring opportunity for increased company expansion and greater profit . . . while you are relieved of heavy expense and worry. Personnel held intact whenever possible.

All discussions and negotiations strictly confidential

Box 1239—1474 B'way, N. Y.

D-6

The right man may be seeking a job in an advertisement in this section.

The machine or the material you urgently need may be advertised right here in these columns.

Read Them, Use Them—If you need something, advertise for it — If you have something to sell tell the industry about it—Everybody reads the Clearing House.

CLASSIFIED ADS BRING RESULTS

HOME for them!

and the HOME STRETCH for YOU!

You still have time! In December, your employees' allotments to the Victory Loan through your company's Payroll Savings Plan offer a final chance to help speed the proud homecoming of our fighting men—and do all in medical power for our hospitalized heroes!

Make December a plantwide TOP-THE-QUOTA drive! Now's the time to spotlight your Payroll Savings Plan—and "brief" your Bond-selling organization for fast, last minute action!

Resolicit every employee to buy the New F.D.R. Memorial $200 Bond

The new Franklin Delano Roosevelt $200 Bond—better than actual cash because it earns interest—is a strong building stone toward the secure future of every employee-purchaser!

From now 'til the New Year—with plant rallies, interdepartmental contests and resolicitation—keep Payroll Savings Plan Bond-buying at a new Victory Loan high! Buying a Victory Bond is the best way of saying "Welcome Home" to our returning veterans! Also an active aid in assuring prosperity to your nation, your employees—and your own industry!

VICTORY LOAN

The Treasury Department acknowledges with appreciation the publication of this message by

PAPER TRADE JOURNAL

This is an official U.S. Treasury advertisement prepared under the auspices of the Treasury Department and War Advertising Council

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High Speed Disc Refiner
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PASSAIC, NEW JERSEY

Appleton Felts

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APPLETON WOOLEN MILLS
APPLETON-WISCONSIN

Sandy Hill
IRON & BRASS WORKS
PAPER MACHINERY SPECIALISTS • HUDSON FALLS, N. Y.
BUILDERS OF SANDY HILL, BERTRAMS AND KAMYR EQUIPMENT

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MADE SPECIALLY FOR PAPER and PULP MILL USE
Copper, Bronze, Steel, Stainless Steel and other metals, Heat-treated.
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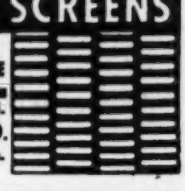

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THE CORROSION RESISTANT ALLOY
CAST • ROLLED • FABRICATED
for all equipment exposed to corrosion by sulphite acids
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K-121-S DEINKING — DECOLORIZING and COOKING PROCESSES K-C-2
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12500 Berea Road Cleveland, Ohio

38 Points of Superiority
ROTARY DISC Type 36-2 REFINER
a better product
a bigger profit—
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KOHLER UNWIND AND REWIND REELS
with full speed roll change
INCREASE PRODUCTION DECREASE WASTE
Maintain a constant uniform quality of product.
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The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Monsanto Chemical Co.
Norton Co.

ADHESIVES
American Resinous Chemicals Corp.
Arabol Mfg. Co.
Glidden Company, Soya Products Div.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
H. K. Porter Company Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Steamaire Company

BAG MACHINES
Thomas W. Hall Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Worden White Co.
Valley Iron Works Co.

BEARINGS
Black-Clawson Company
Jones, E. D. & Sons Co.
The Manhattan Rubber Mfg. Co.
Montague Machine Works
Rollway Bearing Co.
Shartle Brothers Machine Co.
SKF Industries Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

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Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Herman Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

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Dilts Machine Works Inc.
Downington Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Worden White Co.
Valley Iron Works Co.

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The Cincinnati Rubber Mfg. Co.
Graton & Knight Company
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machinery Corp.

BLEACHING APPARATUS
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E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Shady Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

BUILDERS—PAPER MILLS
Merritt-Chapman & Scott Co.

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Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdel Car Wheel Co.
Moore & White Co.
Black-Clawson Company
Perkins & Son, Inc., B. F.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Packing Products Co.

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Fort Pitt Steel Casting Co., Div. H. K. Porter Company, Inc.
Grinnel Company
Hamblet Machine Co.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross, J. O. Eng. Co.
Shartle Brothers Machine Co.

CHEMICALS
Amer. Cyanamid & Chem. Corp.
American Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
Diamond Alkali Co.
Dispersion Process Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Glidden Corp.
Hooker Electrochemical Company
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Stauffer Chemical Company
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemical Corp.

CLEANING MATERIALS
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Bird Machine Co.
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp.
J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Horton Manufacturing Co.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Stearns Magnet Mfg. Co.
Stearns Magnetic Mfg. Co.
T. B. Wood's Sons Company

COATING MATERIAL
Glidden Corp.

COATING MACHINERY
Horton Mfg. Co.
Hudson Sharp Machine Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machinery Corp.

CONSTRUCTION ENGINEERS
Merritt-Chapman & Scott Corp.

CONSULTING ENGINEERS
W. H. L. D. Betz
Frederic C. Clark
Fergusson, Hardy S.
Hardy, George F.
Johnson & Wierck, Inc.
The Kohler System Company
Main, Inc., Chas. T.
Harold R. Murdock
J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.

CONTROLS
The Bristol Company
Stickle Steam Specialties Co.

CONVEYORS
Black-Clawson Company
Murray, D. J. Mfg. Co.
Ross Engineering Corp., J. O.

CORES
Elixman Paper Co.
Sonoco Products Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine C.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.

CUTTERS
Thomas W. Hall Co.
Noble & Wood Mach. Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DE-INKING
Kinsley Chemical Co.

DIGESTERS
H. K. Porter Company Inc.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O. Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Horton Manufacturing Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

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Merritt-Chapman & Scott Corp.

EVAPORATORS
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Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS
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B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

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Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co. Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
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Shuler & Benninghofen
Waterbury Felt Co.
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FELT GUIDES
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

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Amer. Cyanamid & Chem. Corp.
American Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Moore & White Co.
J. O. Ross Engrg. Corp.
Worthington Pump & Machy. Corp.
Witco Chemical Co.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Norton Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.

GEARS
Black-Clawson Company

WHERE TO BUY

De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Norton Company
Simonds Worden White Co.
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Fibre Making Processes, Inc.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthing Pump & Mchy Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan Inc.
United States Rubber Co.

HUMIDITY CONTROL
Steamaire Company

INSTRUMENTS, TESTING AND MEASURING
W. H. & L. D. Betz
N. P. Bowsher
The Bristol Company
Builders-Providence, Inc.
The Foxboro Company
General Electric
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines Inc.
Wallace & Tiernan Instrument Co.

INSULATION
Johns-Manville Sales Corp.

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Behr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

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Taber Instrument Co.
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Gulf Refining Co.
Sinclair Refining Co.
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Steamaire Company

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Reliance Electric & Engrg. Co.
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Pusey & Jones
J. J. Ross Company
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Hudson Sharp Machine Company
Langston Co., Samuel M.

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Shartle Brothers Machine Co.
Waldron Corp., John

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Walworth Company
Youngstown Welding & Engrg. Co.

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Waldron Corp., John
Weber, Homer G.

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Ross Engineering Corp, J. O.
Valley Iron Works Co.

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The Kohler System Company
Montague Machine Co.
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Bauer Brothers Co.
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The Brown Instrument Co.
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Noble & Wood Machine Co.
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American Resinous Chemicals Corp.
Glidden Corp.
The Resinous Products & Chemical Co.

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D. J. Murray Mfg. Co.
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Perkins, B. F., & Sons Co.
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J. J. Ross Company
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Shartle Brothers Machine Co.
Sinclair Co.
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Stearns Magnetic Mfg. Co.
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United States Ruber Co.
Valley Iron Works Co.
Waldron Corp., John

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Stowe-Woodward Inc.
Youngstown Welding & Engrg. Co.

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Johnstone Eng. & Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.

ROOFING MATERIALS
Johns-Manville Sales Corp.

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Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman C.

SCALES
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Merrick Scale Mfg. Co.

Screen Plates
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Union Machine Co.
Union Screen Plate Co.

SCREENS
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Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

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The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

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Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
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Carthage Machine Co.

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American Resineus Chemicals Corp.
Black-Clawson Company
The Dow Chemical Company
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Glidden Company, Soya Products Div.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Socony-Vacuum Co.
Stein, Hall & Co., Inc.

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Carthage Machine Co.
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Downingtown Mfg. Co.
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Hamblet Machine Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

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The Condon & Carpenter Co.
Eastern Stainless Steel Corp.
Industrial Steels, Inc.

STARCH
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Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

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Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

STRAPPING & STRAPPING MACHINES
Acme Steel Company
The Stanley Works

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Moore & White Co.
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric Corp.

SULPHUR
American Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
Ansul Chemical Company

TALC
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W. H. Leomis Talc Corp.
International Talc Company

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Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
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Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Stowe-Woodward Inc.
United States Rubber Co.
Waldron Corp., John
Youngstown Welding & Engrg. Co.

THICKENERS, DECKERS & SAVEALLS
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Bulkley, Dunton Pulp Co. Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

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Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

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The Stanley Works
Walworth Company

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Armstrong Machine Works
Crane Co.
Grinnel Company
Johnson Corporation
Shartle Bros. Mch. Co.

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Marathon Fdy. & Mch. Co.

TUBS
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.

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Westinghouse Electric Corp.
Worthington Pump & Machinery Corp.

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Rotogravure Engrg. Co.
J. J. Ross Company
Ross Paper Machinery Co.
Shartle Brothers Machine Co.

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Dilts Machine Works
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The Foxboro Company
Hills-McCanna Co.
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Union Screen Plate Co.

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Shartle Brothers Machine Co.
Valley Iron Works Co.

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The Permutit Company

WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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General Electric Company
Walworth Company
Westinghouse Electric Corp.

WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRES
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co., Inc.
Cheney Bigelow Wire Works
Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
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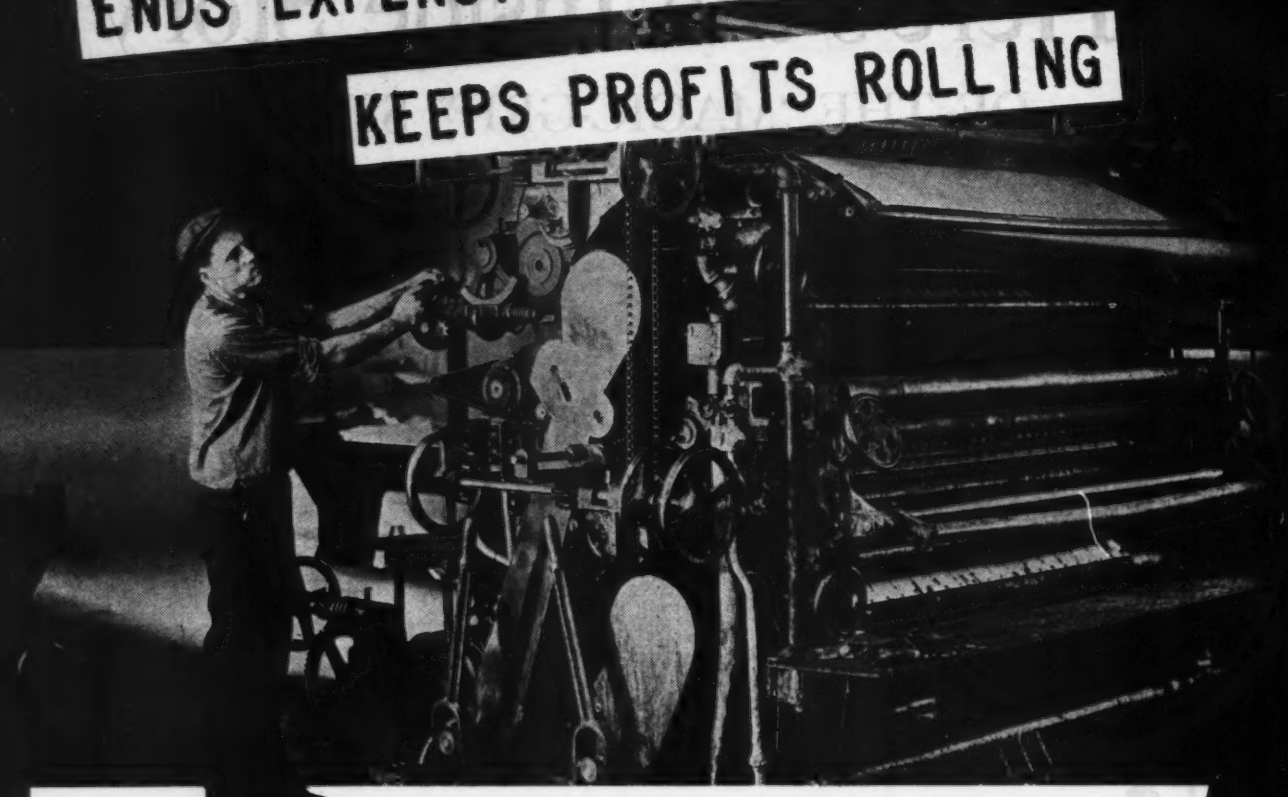

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